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THE JOURNAL

OF THE

American Medical Association

Subscription, $8.00 | Published Weekly at | *Single Copy, 25 Cents*

VOLUME 130, No. 7 | 535 North Dearborn Street, Chicago 10, Illinois | FEBRUARY 16, 1946

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THE JOURNAL of the American Medical Association is published weekly by the American Medical Association. Subscription price, $8.00 a year. 25c a copy. Canadian $9.50. Foreign $12.00. Entered as second class matter June 25, 1885, at the Postoffice at Chicago, Ill., under act of March 3, 1879. Address all communications to American Medical Association, 535 N. Dearborn St., Chicago 10, Illinois.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 130, No. 7 — CHICAGO, ILLINOIS — FEBRUARY 16, 1946

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ARTIFICIAL RESPIRATION

JULIUS H. COMROE JR., M.D., and ROBERT D. DRIPPS, M.D.
Philadelphia

A recent review article [1] has pointed out the paucity of quantitative data on which valid comparisons may be made of various technics for performing artificial respiration. At present the two most widely discussed methods are the Schafer prone pressure and the Eve tilting [2] or gravity technics; the former is recommended by the American Red Cross, while the latter is used extensively by the British navy. In view of the prolonged and often bitter controversies in the field of artificial respiration, it is interesting to note that the relative effectiveness of these two methods has been measured in only 3 subjects who might possibly be considered to be in need of artificial respiration. Each of these 3 was anesthetized deeply with ether, then rendered apneic by passive hyperventilation and immediately subjected to the Schafer and Eve technics while measurements of tidal air were made.[3] Data on these patients are given in table 1. It indicates that much more data are needed to prove that the widely accepted Schafer method is superior or even adequate.

As far as we know, these two methods have never been compared quantitatively in typical cases of respiratory failure with asphyxia. In the cases in table 1 the blood oxygen tension was undoubtedly high and the carbon dioxide tension low as a result of the period of hyperventilation induced by the investigators. In cases encountered clinically in which artificial respiration is required, asphyxia always exists, i. e., arterial oxygen is very low and carbon dioxide is very high.[4] This report is concerned with 2 such patients with complete respiratory arrest in whom it was possible to compare various resuscitation technics. In patient C. M. respiration ceased following a severe head injury; in B. R. it stopped after intraventricular rupture of a brain abscess. Both patients were unconscious throughout. In both, arterial blood pressure was low (40 to 70 mm. of mercury) and despite plasma, saline or gelatin infusions it remained near shock level until death (in seven hours in C. M., in two and one-half hours in B. R.). Respiration was measured by applying tightly a full face mask equipped with flutter valves; the expired air was conducted through a Bohr meter and measured. In both, an endotracheal tube was passed through the larynx to ensure an open airway. Arterial blood gas analyses were performed by means of the technic of Van Slyke and Neill; blood p_H was measured in a closed glass electrode at 38 C.

RESULTS

1. *Comparison of Schafer and Eve Methods.*—The data obtained (table 3) show the complete inadequacy of the Schafer method in these 2 cases. The tidal air produced by the Schafer technic varied from 71.5 to 117 cc. (normal is 400 to 500 cc.) despite the fact that the motions used conformed closely to the approved technic.[5] Two different operators (both experienced) were used, each weighing approximately 180 pounds (81.6 Kg.). It is instructive to note that prone pressure applied to C. M. at a time when he was lying on a thin mattress produced only 75 cc. per cycle as compared with 117 cc. when the mattress was removed leaving only a hard plywood tilt table; too often artificial respiration is given to a mattress rather than to the patient.

On the other hand, the Eve tilting or gravity technic (with the patient tilted through an angle of 45 degrees in each direction) produced an adequate exchange of 286 to 500 cc. per cycle. No comparison of possible beneficial effects on circulation of the two methods was possible in this study.

It is apparent that the Schafer method failed almost completely to ventilate these patients. Widespread popular reliance on this technic rests chiefly on its ability to maintain a good respiratory exchange (360 to 1,000 cc. per cycle [6]) in subjects who have voluntarily suspended their respiration. It has long been known that nonrigid cadavers cannot be ventilated by the Schafer technic, values of 20 to 50 cc. per cycle having been reported.[6] Proponents of the Schafer method have dismissed these observations on the grounds that loss of muscular tone, increased blood in the lungs and possible respiratory tract obstruction in such subjects make them unfit for test purposes. However, there is good reason to suspect that a patient who is unconscious, apneic, asphyctic and in shock because of profound medullary depression resembles a fresh cadaver more

Valuable assistance was given in these studies by Drs. Margery Deming, John Drew, John Todd, William Holt and John Churchill.

From the Department of Pharmacology and Harrison Department for Surgical Research, University of Pennsylvania School of Medicine, and Department of Anesthesiology, Hospital of the University of Pennsylvania.

Financial support for this work was received from the National Committee for Mental Hygiene from funds granted by the Committee on Research in Dementia Precox founded by the Supreme Council, 330 Scottish Rite, Northern Masonic Jurisdiction, U. S. A.

1. Comroe, J. H., Jr., and Dripps, R. D.: Applied Physiology, in Luck, J. M.: Annual Review of Physiology, Stanford University, Calif., Annual Reviews, Inc., 1945, vol. 7, p. 666.

2. Eve, F. C.: Actuation of the Inert Diaphragm by a Gravity Method, Lancet **2**: 995 (Nov. 5) 1932.

3. Waters, R. M., and Bennett, J. H.: Artificial Respiration: Comparison of Manual Maneuvers, Anesth. & Analg. **15**: 151 (May-June) 1936. MacIntosh, R. R.: Artificial Respiration, Brit. M. J. **2**: 493 (Oct. 16) 1943. Eve, F. C.: Resuscitation Methods for Rescue Boats, ibid. **1**: 21 (Jan. 6) 1945.

4. Eastman, N. J.: Fetal Blood Studies, Am. J. Obst. & Gynec. **31**: 563 (April) 1936.

5. Scott, M. M.: First Aid in Asphyxia, Practitioner **147**: 580 (Sept.) 1941.

6. Cordier, D. G.: Methods of Artificial Respiration, Brit. M. J. **2**: 381 (Sept. 25) 1943.

closely than he resembles a normal healthy subject. Our evidence indicates that this resemblance certainly exists so far as respiratory exchange is concerned. The Schafer method depends to a large extent on the elastic recoil of the lungs and tonicity in the respiratory muscles; since these are absent in the deeply asphyxiated patient, Schafer's method becomes of least value when most needed. Conversely the Eve tilting method is efficient when tonus and elasticity of these structures are absent.

TABLE 1.—*Comparison of Schafer and Eve Methods by Previous Investigators*

	Tidal Air	
	Schafer	Eve
Waters and Bennett [3]	160 cc.	150 cc.
MacIntosh [5]	340 cc.	580 cc.
Eve [2]	530 cc.	850 cc.

Comment: There are two important considerations in any discussion of artificial respiration. The first is the time element. When artificial respiration is needed, it is essential that the most immediately available method be employed instantly. This usually happens to be the Schafer prone pressure method, for even simple mechanical devices such as a tilt board or bellows are rarely available in the first few minutes, even in large hospitals. The second important consideration is that, as soon as possible, the most efficient available method of artificial respiration should replace the emergency measure. We agree with all who have claimed that insistence on the sole use of mechanical "gadgets" often leads to loss of life because of the minutes in which no therapy at all is instituted. We do not agree, however, that reliance is to be placed on the Schafer method except as a very temporary emergency measure.

On the other hand, we do not wish to imply that the Eve method is the best available or best possible technic for artificial respiration; valuable minutes may be lost in improvising a tilt table, and the operation of such improvised tables usually requires the expenditure of considerably more energy and manpower than is required with other methods.

Furthermore, at the earliest possible moment the patient's care should pass from the hands of the fireman, policeman or passerby to those of a physician highly trained in resuscitation; in most hospitals this is the anesthesiologist. Resuscitation of the near dead is a complex matter involving specialized knowledge concerning many aspects of respiratory, circulatory and central nervous system physiology. It is of the utmost importance that clinicians and physiologists collect quantitative data on many more such apneic, asphyxiated patients in whom actual need exists for artificial ventilation.

2. *Intratracheal Insufflation with Oxygen.*—In 1909 Meltzer and Auer [7] noted that life could be maintained for hours in apneic animals without any external respiratory movements if a stream of oxygen was directed through a catheter toward the bifurcation of the trachea. This finding has been confirmed frequently.[8] However, it has been pointed out on several occasions [9] that the oxygen insufflation technic does not effectively eliminate carbon dioxide from the lungs; to accomplish this, actual expansion on and collapse of the lungs are required. Carbon dioxide has a greater molecular weight than oxygen and does not diffuse more rapidly in air than oxygen, despite the greater ease with which it diffuses through water and through living membranes. Nevertheless the original insufflation technic is not infrequently used (without additional rhythmic compression of the chest) because of its ease and simplicity.

TABLE 2.—*Arterial Blood and Alveolar Gas Studies During Tracheal Insufflation of Oxygen*

			Arterial Blood				"Alveolar" Air	
	Time	Oxygen Therapy	Oxygen Saturation, %	pH	CO_2 Content, Vols. %	PCO_2, Mm. Hg	O_2, %	CO_2, %
Patient—C. M. Man aged 53 Height, 6 feet Weight, 196 pounds	2:57 p. m.	Tracheal insufflation, 6 liters per minute for 7 minutes	95.8	6.86	64.8	166	....	....
	3:18 p. pm.	Tracheal insufflation, 10 liters per minute for 20 minutes	92	6.80	72.1	207	....	....
	6:30 p. m.	Tracheal insufflation, 6 liters per minute for 3 hours	75	6.67	85.8	314	52.3	29.7
	6:40 p. m.	Hyperventilation with anesthesia bag, 40 respirations per minute for 10 minutes	95	7.00	55.5	106	....	....
	7:00 p. m.	Tracheal insufflation, 6 liters per minute for 15 minutes	75	6.83	70.9	189	47.7	24.4
Patient—B. R. Woman aged 41 Height, 5 feet 5 inches Weight, 135 pounds	9:15 p. m.	Tracheal insufflation, 11 liters per minute for 30 minutes	90	6.86	55.9	142	....	....
	9:48 p. m.	Tracheal insufflation, 11 liters per minute for 63 minutes	65	6.88	61.6	152	....	....

In the course of the studies just described we were able to make observations on arterial and alveolar gas tensions during intratracheal insufflation of oxygen (table 2). In patients C. M. this technic resulted in an initial arterial oxygen saturation of 95.8 per cent and in B. R. of 90 per cent. However, at these times the

TABLE 3.—*Comparison of Schafer and Eve Methods on Two Apneic, Asphyctic Patients*

Patient	Tidal Air		Rate		Minute Volume	
	Schafer	Eve	Schafer	Eve	Schafer	Eve
1. C. M.						
On mattress...	75 cc.		12		900 cc.	
On hard board	117 cc.	500 cc.	12	12	1,400 cc.	6,000 cc.
2. B. R.						
On hard board	71.5 cc.	286 cc.	14	14	1,000 cc.	4,000 cc.
	95.0 cc.	312 cc.	21	16	2,000 cc.	5,000 cc.

7. Meltzer, S. J., and Auer, J.: Continuous Respiration Without Respiratory Movements, J. Exper. Med. **11**: 622 (July) 1909.

8. Draper, W. B., and Whitehead, R. W.: Diffusion Respiration in the Dog Anesthetized by Pentothal Sodium, Anesthesiology **5**: 262 (May) 1944. Roth, L. W.; Whitehead, R. W., and Draper, W. B.: Studies on Diffusion Respiration: II. Recovery Following Prolonged Respiratory Arrest, Federation Proc. **4**: 61 (March) 1945.

9. Behnke, A. R.: Certain Physiologic Principles Underlying Resuscitation and Oxygen Therapy, Anesthesiology **2**: 245 (May) 1941. Henderson, Yandell: Resuscitation, J. A. M. A. **110**: 304 (Jan. 22) 1938. Draper and Whitehead.[8] Roth, Whitehead and Draper.[8]

arterial carbon dioxide tensions were 166 and 142 mm. of mercury and the arterial p_H values were 6.86 and 6.86 respectively. In C. M. we attempted later to obtain alevolar air samples by compression of the chest and simultaneous aspiration of a sample of tracheal air through the previously flushed catheter. While such collections are obviously inaccurate in an apneic, unconscious patient, the figures obtained should be lower rather than higher than true values. The figures of 29.7 per cent of carbon dioxide and 24.4 per cent of carbon dioxide in such "alveolar air" together with an arterial blood carbon dioxide tension of 314 mm., of mercury (equivalent to 44 per cent of carbon dioxide in the alveolar air) leave no doubt regarding the tremendous accumulation of carbon dioxide that may occur during respiratory arrest, despite intratracheal insufflation with oxygen.[10]

Although these patients had a pink color and were obviously well oxygenated, it is apparent from the arterial blood analyses that the blood bathing the central nervous system was grossly abnormal in other respects. The enormous increase in carbon dioxide tension and acidity of the arterial blood are factors not so readily appreciated by the clinician as a decrease in arterial oxygen saturation. While all physicians are familiar with the stimulation of respiration and circulation that follows inhalation of low concentrations of carbon dioxide (5 to 7 per cent) in healthy men, it is not so universally known that high concentrations of carbon dioxide act as a narcotic.[11] The latter depress the medullary centers and the cerebral cortex and lead to decrease in respiration, vasodilatation and fall in blood pressure. The concentrations of carbon dioxide present in the blood of C. M. and B. R. must certainly have exerted a narcotic depressant effect. The extremely low p_H values (6.67 to 6.88) in these patients undoubtedly acted similarly. While a moderate degree of acidosis may increase respiration and circulation reflexly through the chemoreceptors, severe acidosis depresses all vital functions including circulation and respiration. The arterial p_H values in these patients are among the lowest ever recorded (similar figures having been reported only in terminal nephritis [12]). In patient C. M. the low p_H was due in large part to carbon dioxide retention, since hyperventilation with an anesthesia bag [13] for ten minutes at a rate of 40 cycles per minute reduced the arterial carbon dioxide tension to 106 mm. of mercury and increased the p_H to 7.00. Accumulation of lactic acid due to severe tissue anoxia and fixed acid retention due to intense renal vasoconstriction caused by the low blood pressure were probably responsible for some of the acidosis.

These studies emphasize that artificial respiration, to be maximally effective, must not only raise blood oxygen to normal levels but must reduce blood carbon dioxide to normal levels. The original oxygen insufflation technic provides adequate oxygen but permits accumulation of narcotic concentrations of carbon dioxide; consequently it should not be employed for more than a few minutes without additional rhythmic manual compression of the chest. Tingley's plea for a much faster rate in artificial respiration for asphyxiated patients [14] is probably justified; we do not believe that these unconscious patients require excessive amounts of oxygen, but it certainly is essential to reduce carbon dioxide to normal levels. There is no doubt that low levels of blood carbon dioxide may be harmful because of the resultant cerebral vasoconstriction;[15] however, it is unlikely that any existing method of manual artificial respiration could produce enough hyperventilation in fifteen minutes to do harm. Excessive hyperventilation may of course result from the improper use of mechanical resuscitators.

It is important to note that in both patients arterial oxygen saturation fell (from 95.8 per cent to 75 per cent and from 90 per cent to 65 per cent) with the prolonged use of the intratracheal insufflation technic. While this may have been due in part to the formation of pulmonary edema fluid, we feel that the development of atelectasis is a much more likely explanation. The coexistence of alveoli filled with oxygen (which is readily absorbed into the blood), apnea and inability to cough up secretions presents the ideal situation for plugging of bronchioles and subsequent atelectasis. Evidence in favor of this concept was provided by Comroe, Dripps, Dumke and Deming,[16] who found considerable decreases in vital capacity even in normal men who had been breathing high oxygen concentrations for prolonged periods. These studies again emphasize the complexities involved in treating a near-dead patient and the need for further and more careful evaluation of available technics.

SUMMARY

Quantitative data obtained on apneic, asphyctic patients cast grave doubt on the efficacy of the Schafer prone pressure method for producing artificial respiration.

Observations have also been made on the Eve tilting method and the intratracheal oxygen insufflation technic.

10. It should be pointed out that there was no greater hindrance to outward diffusion of carbon dioxide than to inward diffusion of oxygen. The arterial oxygen saturation of 90 to 95.8 per cent was attained only by reason of the high oxygen tension supplied in the trachea: if air had been used instead of oxygen, very severe anoxia would have accompanied the high carbon dioxide levels.

11. Seevers, M. H.: The Narcotic Properties of Carbon Dioxide, New York State J. Med. **44**: 597 (March 15) 1944.

12. Cullen, G. E., and Jonas, L.: The Effect of Insulin Treatment on the Hydrogen Ion Concentration and Alkali Reserve of the Blood in Diabetic Acidosis, J. Biol. Chem. **57**: 541 (Sept.) 1923.

13. Waters, R. M.: Simple Methods for Performing Artificial Respiration, J. A. M. A. **123**: 559 (Oct. 30) 1943.

14. Tingley, P. R.: The Need for a Greatly Increased Rate in Asphyxia, Brit. M. J. **2**: 366 (Sept. 16) 1944.

15. Kety, S. S., and Schmidt, C. F.: The Effects of Active and Passive Hyperventilation on Cerebral Blood Flow, Cerebral Oxygen Consumption, Cardiac Output and Blood Pressure of Normal Young Men, J. Clin. Investigation, to be published.

16. Comroe, J. H.; Dripps, R. D.; Dumke, P. R., and Deming, Margo: Oxygen Toxicity, J. A. M. A. **128**: 710 (July 7) 1945.

Skull Fracture.—Depending on the velocity and size of the striking object, a local deformation may take place and the bone in the area of impact may fail with consequent localized circumscribed fracture and depression. In such a case there frequently occurs a separation of the inner and outer tables. The bone fails at the convexity of the border of the circumscribed area of bone which is deformed by the impact. This causes fracture by tension of the external table. The central portion of the area of deformed bone may fail internally, causing a fracture of the inner table. A separation of inner and outer tables may take place as one tends to slide over the other. A localized impact may dissipate itself in fracturing and depression without much transmission of energy to the skull contents. On the other hand, if an area of circumscribed depression is thrust into the cranial cavity by a severe impact, there may be a plunger effect with intracranial pressure increased and consequent pathologic and physiologic manifestations from distant lesions.—Gurdjian, E. S., and Webster, J. E.: Experimental and Clinical Studies on the Mechanism of Head Injury, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

THE INJECTION TREATMENT OF ESOPHAGEAL VARICES

CECIL O. PATTERSON, M.D.
and
MILFORD O. ROUSE, M.D.
Dallas, Texas

It is well known that recurring massive hemorrhage ultimately resulting in death often occurs in the patient who has untreated esophageal varices. As seen by x-ray examination and esophagoscopy, the bulbous venous projections into the esophageal lumen are daily subject to trauma from the swallowed bolus of food. Ulceration and rupture result in massive blood loss. Esophageal varices appear to serve no useful purpose that cannot be served by other and nonvulnerable anastomoses between the portal and systemic venous circulations. Our experience is that obliteration of these veins results in no appreciable unfavorable effects but rather that clinical improvement occurs soon after prevention of blood loss from the ruptured varix.

Experimental animals and other species than man have not provided the clinical syndrome in which the esophageal varix appears. Injection treatment had for years been considered, but it remained for two physicians, Paul Frenckner and Clarence Crafoord [1] of Stockholm, Sweden, in 1939 to report the first case in which esophageal varices were treated by injections of a sclerosing solution. There had been no recurrence of bleeding at the time of the report three years after the injection. In 1940 Moersch [2] reported the first case in this country in which the treatment was employed. He has later [3] reported other cases in which he has injected esophageal varices with a 2.5 or a 5 per cent solution of sodium morrhuate.

It has been our privilege to treat 12 patients (10 white male, 2 white female), the youngest 3 years of age, the oldest 66 years of age, injections being made into one or more veins. The patients have received at the most three or four injections at intervals varying from one week to one year. One patient's injections were done before and also after splenectomy. Four patients' injections were done after splenectomy, and 7 patients of older age were so treated in whom splenectomy has not as yet been done.

REPORT OF CASES

CASE 1.—A white man aged 53, admitted to the Medical Arts Hospital, service of Dr. Merritt B. Whitten, had been unable to leave his bed for three months because of frequently recurring massive hematemeses. Frequent states of shock from blood loss had been treated by infusions of plasma and whole blood. With the diagnosis of cirrhosis of the liver, and huge abdominal ascites, he had had frequent abdominal paracenteses the previous eighteen months.

Esophagoscopy and injection of his esophageal varices were done by us at weekly intervals for four times in February 1944. He was up in a wheel chair six weeks later. He was soon ambulatory and discharged from the hospital. Six months after his injections his red cell count was 4,200,000 and he had continued ambulatory. In September 1944, seven months after his injection treatments, he had several recurrences of massive hematemesis from which he failed to survive. It was quite stimulating, however, that this patient with ascites and confined to his bed for three months because of esophageal varices which ruptured each time his red count came up to about 2,000,000, had quickly become able to be out of bed and his red cell count had rapidly returned to normal within a few weeks after the injection treatment of his esophageal varices.

CASE 2.—A white boy aged 3 years, admitted to Bradford Memorial Hospital, service of Dr. John Dunlap, was diagnosed as having "splenomegalia, with massive hematemesis, probably Banti's syndrome." Recommended splenectomy and ligation of the coronary vein of the stomach were successfully done Oct. 30, 1943. Massive hematemesis recurred Sept. 15, 1943 and Feb. 11-14, 1944. Having had splenectomy, this small boy was considered an ideal subject for the best results by injection treatment of his esophageal varices. Esophagoscopy by one of us on February 17 visualized a large, bulbous, bluish red scarred vein projecting into the lumen of the esophagus just above the cardia, which was injected with 1 cc. of 5 per cent sodium morrhuate. There were only a few drops of blood loss from the needle puncture. Esophagoscopy was repeated February 26 and two other small veins near the cardia were injected. Fifteen months later, as a precautionary measure, esophagoscopy was repeated and two small veins were injected. There had been no evidence of blood loss during twenty-two months since the first injection treatment of his esophageal varices, although two massive hemorrhages requiring transfusions had occurred at six weeks' intervals prior to the injection treatment. He has a normal blood picture and has grown normally in weight and height.

CASE 3.—A white man aged 65, admitted to the emergency medical service, Parkland Hospital, Oct, 21, 1944, was in a state of profound medical shock following massive hematemesis. An outpatient record stated that he had partaken of as much as a pint daily of alcohol for years. The history, physical examination, recent x-ray examinations and laboratory studies had justified the working diagnosis of cirrhosis of the liver with bleeding esophageal varices. Within six hours after admission he had received 2,000 cc. of whole blood; but fresh red and clotted blood had continued to roll out of his mouth, such that he showed no improvement, was semiconscious and was pulseless at the wrists, and death seemed inevitable.

With the help of capable house officers he was removed to the operating room while whole blood was being administered into the veins of both feet and one arm. At esophagoscopy by one of us a large bleeding varix was injected with a total of 6 cc. of 5 per cent sodium morrhuate. The patient was soon returned to his room, where the blood pressure was 114/80. The following morning he was sitting upright in bed sipping milk. About six months later, at the age of 66, he died of other causes, having had no recurrence of bleeding.

CASE 4.—A white woman aged 33 was admitted to the medical service of Dr. Tinsley R. Harrison, Southwestern Medical College, Nov. 1, 1944, having had two weeks of recurring hematemesis. There had been nine similar episodes in the previous five years. As an outpatient in 1937 she had had jaundice during antisyphilitic therapy. On the present admission the spleen was palpable four fingerbreadths below the left costal margin. The red cell count was 1,480,000. Preparation of the patient for needed splenectomy was interrupted repeatedly by massive hematemeses.

Esophagoscopy by one of us on Nov. 29, 1944 revealed three large venous trunks in the lumen of the lower third of the esophagus. These were well injected. Thereafter the red cell count maintained a safe level after transfusions. The patient was transferred to the surgical service and removal of the spleen, which weighed 1,325 Gm., was accomplished December 9. The tissue diagnosis was "(1) portal cirrhosis, Laënnec's type; (2) extensive degree of chronic passive hyperemia of the spleen." The patient was discharged from the hospital two weeks postoperatively. On her return to the outpatient gastroenterologic service, Jan. 24, 1945, visible veins in the lower part of the esophagus were again injected, and the patient was admitted to the hospital for twenty-four hours. Report to the outpatient service on June 6, 1945 revealed a normal weight of 155 pounds (70 Kg.). There had been no recurrence of bleeding; there was normal ruddy skin.

From the Division of Gastroenterology, Department of Medicine, Southwestern Medical College.

We were called on by the physicians named to care for these patients. Surgeons and radiologists participated in the diagnoses and corrective surgical procedures.

1. Crafoord, Clarence, and Frenckner, Paul: Nonsurgical Treatment of Varicose Veins of the Esophagus, Acta oto-laryng. **27**: 422-429, 1939.
2. Moersch, H. J.: Treatment of Esophageal Varices by Injection of a Sclerosing Solution, J. Thoracic Surg. **10**: 300-308, 1940.
3. Moersch, H. J.: Further Studies on the Treatment of Esophageal Varices by Injection of a Sclerosing Solution, Ann. Otol., Rhin. & Laryng. **50**: 1233-1244, 1941.

CASE 5.—A white man aged 40, a farmer, came to our office June 14, 1941 because of recurring massive hematemeses. For ten years he had had recurring "swelling of the abdomen and feet." In March 1938 he had vomited blood and had been admitted to a hospital, where he was told that he had cirrhosis of the liver. His abdomen had been tapped and a large quantity of fluid had leaked from the needle puncture wound, saturating his bed over night. There had been an area of "match box dermatitis" the size of the palm on his right thigh for many years.

To physical examination the spleen was palpably enlarged; there was shifting dulness in the abdomen. The hemoglobin was 23 per cent; the red cell count was 1,220,000. He was referred to the surgical service of the medical college, where splenectomy was successfully done July 9, 1941. At surgery he was found to have a very small nodular liver. In February 1945 he again came to our office because of massive hematemesis and swelling of the abdomen and feet. There was again a tightly distended abdomen, which to percussion was that of ascitic fluid. Esophagoscopy by one of us revealed extensive varices which almost filled the lumen of the lower half of the esophagus. Beginning at the cardia, the veins were injected every third day for three times, a total of 20 cc. of 5 per cent sodium morrhuate being given. After transfusions of whole blood and plasma he was discharged from the hospital and returned to work six weeks later. He has regained his normal weight of 146 pounds (66 Kg.); pallor, the large ascites and the edema of the feet have disappeared. It is noteworthy now that seven years have elapsed since his first massive hematemesis and ascites and that he is symptom free and that during the two years prior to this admission he had lost no time from his work as shipping clerk, ten hours a day, on a six day a week wartime job.

CASE 6.—A white man aged 51 was admitted to the service of Dr. E. R. Cox, Baylor University Hospital, May 20, 1945, after recurring massive hematemesis. In December 1944 careful study by Dr. Cox had revealed "enlarged spleen of unknown etiology." Hemorrhage recurred and the hemoglobin reached 6.9 Gm. on the third day after admission. To esophagoscopy by one of us on May 26 several large venous sacculations were seen projecting into the lumen of the lower third of the esophagus. When suction was applied to clear away mucus from a vein just above the cardia, two small continuous streams of blood appeared. The vein was well injected but the bleeding continued. Quickly there was an estimated 300 to 400 cc. of blood loss. Finally a half-inch gauze pack was placed firmly against the bleeding vein and the ever grateful patient was returned to his bed. The pack was removed the following morning. Liquids were allowed that day, a soft diet was given the following day, and the patient was discharged on the fourth day after injection treatment. One month later he was ambulatory and had a normal ruddy skin; his ascites had disappeared. His spleen was still enlarged.

CASE 7.—A white man aged 66 came March 26, 1945, having been referred to the gastroenterologic service, Southwestern Medical College, to have injection treatment of esophageal varices. There had been massive hematemesis in April, August and November of the preceding year, after each of which he quickly recovered following transfusions of whole blood. He had had typhoid thirty-six years before and had been told that he had an attack of coronary occlusion four years before the present admission. The patient was of slender build; the abdomen was flaccid and the spleen was palpable three finger-breadths below the left costal margin. There were protruding hemorrhoids.

On admission the hemoglobin was 7.4 Gm. The icterus index was 1. A cephalin-cholesterol flocculation test at twenty-four hours was 3 plus, at forty-eight hours 4 plus. The sulfobromophthalein test revealed 66 per cent of dye retained fifteen minutes, 25 per cent thirty minutes, 8 per cent forty-five minutes and 5 per cent one hour. The Kline reaction was negative. At x-ray examination April 2 the admitting diagnosis of esophageal varices was verified. On April 4 esophagoscopy by one of us revealed the lower half of the esophagus occluded by multiple large veins. Three veins were injected, one each to the patient's right anterior, left anterior and right posterior, a total of 8 cc. of 5 per cent sodium morrhuate. There was an estimated 75 cc. blood loss. His esophageal veins were injected again April 11, 8 cc.; April 18, 10 cc. It was then thought that he had enough injections, but we were dubious of his recovery because of large gastric varices which appeared in the x-ray film and which were also visible to gastroscopy. The opinion of the surgical service, on repeated consultation, was that his 66 years and his general depletion contraindicated splenectomy or other corrective surgery.

At the conclusion of the injection treatments the hemoglobin was 8 Gm. There was recurrence of large hemorrhage April 24, 27 and 30 and May 3, 6 and 9, followed by gradual decline and demise May 11. At autopsy the pathologist, Dr. Charles T. Ashworth, reported that portal hypertension, with resultant esophageal varices, had evidently been the result of obstruction to the portal vein by a mass of scar tissue at the porta hepatis. The spleen weighed 1,095 Gm. There were multiple 1 mm. ulcerations of varices in the lower third of the esophagus, obviously the site of recent hemorrhage. There was no evidence of bleeding from the veins of the stomach. The gastric mucosa was quite smooth and intact, although large veins could be seen in the fundic portion of the stomach.

CASE 8.—A white girl aged 17 was admitted to the service of Dr. Paul Thomas, Baylor University Hospital, Oct. 22, 1944, soon after a large vomitus of dark red clotted blood. Banti's syndrome had been diagnosed elsewhere and the patient had had splenectomy ten years before and an omentopexy eighteen months before. The patient, a college sophomore, appeared to be in excellent health except for moderate pallor; the pulse rate was 120, the temperature 102 F., the blood pressure 104/58, the height 5 feet 4 inches (162.5 cm.) and the weight 118 pounds (53.5 Kg.). On admission the hemoglobin was 6.9 Gm., red blood cell count 2,240,000, white blood cell count 16,200, 23 bands, 67 segmented and 13 lymphocytes. The clotting time was 55 seconds, the bleeding time 2 minutes and 30 seconds. The prothrombin time was 42 seconds, or 95.6 per cent of normal. Thirty-six hours after admission, esophagoscopy by one of us revealed multiple varices in the lower third of the esophagus. Scarring over the esophageal veins indicated the sites of former ruptures. Three prominent venous trunks in the lower part of the esophagus were injected with a total of 5.5 cc. of 5 per cent sodium morrhuate. The patient was discharged ambulatory four days after the injection of the varices. As a precautionary measure she was readmitted four months later and the veins were reinjected.

COMMENT

Esophageal varices, to direct inspection through the esophagoscope, are seen in some instances so large that they softly occlude the esophagus.

Several patients have complained that substernal and upper abdominal distress precede hematemesis such that the patient and the patient's family can predict the approaching catastrophe of hemorrhage. It appears, therefore, that persistent substernal distress occurring in a patient having known or suspected esophageal varices would indicate the need for x-ray study and probably esophagoscopy and injection of any veins large enough to produce symptoms.

We have noted that patient 3, in a critical state of shock immediately before the injection, appeared in no danger at all a few moments after the injection and was sitting upright in bed sipping milk ten hours later. It would thus appear safe to do the injection treatment after the patient is in the proper hospital environment with reasonable assurance as to the diagnosis and with adequate facilities, particularly typed whole blood, available. The contraindications to esophagoscopy should of course always be kept in mind.

In the instance of case 4, preparation for necessary splenectomy was repeatedly disrupted by massive hematemesis. Only after the injection of sclerosing solution into the esophageal varices did the hematemesis cease and the red blood cell count maintain a safe level for surgery.

As in case 7, hemorrhage appears not infrequently from esophageal varices but is most rarely proved to be from gastric varices. This fact, as Kegaries [4] showed, is best explained by the anatomy of gastric veins, which tend to be subserosal and are held more firmly by the less elastic structure of the stomach, while in the esophagus varicose veins tend to be submucosal and are held less firmly by the areolar tissues of the esophagus, tending to sacculation and protrusion into the lumen of the esophagus, where they are more vulnerable to ulceration and rupture.

From the foregoing, the ultimate evaluation of treatment of esophageal varices by injecting sclerosing solutions will have to await time and careful observation of these patients. It is true nevertheless that the results thus far observed tend surely to justify the procedure.

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VENOUS THROMBOEMBOLIC DISEASE

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The active rational medical prophylaxis of pulmonary embolism by the use of heparin has been discouraged because of the involved technical procedures required for maintaining continuous anticoagulant effects. Although recent reports on the routine use of dicumarol have been promising,[1] the potential hazards, the unpredictable treatment failures and the requisite complicated laboratory controls do not make this drug the anticoagulant of choice.[2] The therapeutic attack up to the present has been based, for the most part, on the surgical interruption of the continuity of the clot-bearing vein or veins. Our purpose in this communication is to propose a safe, rational method of heparinization for the conservative treatment of thromboembolic disease which obviates previous objections to the use of this drug.

Recognition of the increasing incidence of venous thrombosis in the calf of the leg and in the plantar area has stimulated renewed interest in the problem of intravascular clotting. The statistical surveys of Nygaard [3] and others and the experimental and pathologic studies of Rössle,[4] Neumann [5] and Frykholm [6] have further emphasized the importance of venous thrombi in the pathogenesis of pulmonary embolism. Hunter, Sneeden, Robertson and Snyder [7] stress the fact that embolic phenomena may be the first sign of clinically silent phlebothrombosis of the deep calf veins.

The pathogenesis of intravascular clot formation in bland phlebothrombosis is imperfectly understood. Probably the most important single factor favoring thrombus formation in the lower extremities is the sudden confinement to bed of a previously ambulant individual, especially the thrombophile, without benefit of measures which favor the maintenance of an efficient venous circulation. The formation of clot in a small vein often is followed by its propagation into the larger venous channels. This propagation, especially in the immediate postoperative period, may well be explained by the increased platelet count, enhanced agglutinability or "stickiness" of the platelets, hemoconcentration, increased viscosity of the plasma, hyperglobulinemia and increased fibrinogen content.

It is a well established fact that a rise in the blood platelet count follows childbirth or a surgical operation, and this is believed to be a contributory factor in initiating postpartum or postoperative venous thrombosis. The increase begins about the fourth day after operation or delivery, attains its maximum about the tenth day and then tapers off, reaching normal by the twenty-first day. The period of hyperthrombocytemia corresponds roughly to the period in which venous thrombosis generally occurs. The correspondence, however, is not complete.

To account for this discrepancy, MacKay [8] and later Wright [9] postulated a second thrombogenic factor, an increased agglutinability or adhesiveness of the thrombocytes or blood platelets. This phenomenon also begins about the fourth day postoperatively or post partum and reaches its peak about the tenth day, when nearly 90 per cent of the platelets are adherent. The stickiness then gradually decreases and the platelets are restored to normal by the twenty-first day. For a more detailed discussion of etiology, reference should be made to the papers of Ochsner,[10] Ochsner and DeBakey,[11] Duryea,[12] Frykholm [6] and Bauer.[13]

The basic clot, composed essentially of platelets and leukocytes, represents the so-called white head on which is superimposed a collection of erythrocytes to form the friable red tail. As the blood clot grows, the soft red tail usually waves free in the vascular current. If the thrombus does not become detached, organization soon takes place with fibroblastic proliferation and firm adherence of the thrombus to the vessel wall followed by recanalization to a variable degree. If, however, the soft red clot breaks off and is carried into the swiftly moving vascular stream, it immediately becomes an embolus and causes pulmonary infarction. It is thus evident that, lacking precise knowledge of the initiating factor in thrombosis and, hence, a logical therapeutic

4. Kegaries, D. L.: The Venous Plexus of the Esophagus: Its Clinical Significance, Surg., Gynec. & Obst. **58**: 46-51, 1934.

Aided by grant of funds from friends of the Jewish Hospital of Brooklyn.

From the Thrombo-Embolic Disease Research Unit, Leo Loewe, M.D., Director, Jewish Hospital of Brooklyn.

Contributions were made by Dr. H. J. Greene, Dr. B. S. Epstein, Mr. M. Russell, Miss F. Kashdan and Miss M. Kozak of the Thrombo-Embolic Disease Research Unit.

1. Reich, C.; Yahr, M. D., and Eggers, C.: Dicumarol in the Prevention of Postoperative Thrombosis and Embolism, Surgery **18**: 238, 1945. Barker, N. W.; Cromer, H. E.; Hurn, M., and Waugh, J. N.: The Use of Dicumarol in the Prevention of Postoperative Thrombosis and Embolism, with Special Reference to Dosage and Safe Administration, ibid. **17**: 207, 1945. Zucker, H. D.: Clinical Experiences with Dicumarol: Report of 18 Cases, J. A. M. A. **124**: 217 (Jan. 22) 1944.

2. Shlevin, E. L., and Lederer, M.: Uncontrollable Hemorrhage After Dicumarol Therapy with Autopsy Findings, Ann. Int. Med. **21**: 332, 1944. Wasserman, L. R., and Stats, D.: Clinical Observations on the Effect of 3,3'-Methylenebis(4-Hydroxycoumarin), Am. J. M. Sc. **206**: 466, 1943. de Takats, G., and Fowler, E. F.: The Problem of Thrombo-Embolism, Surgery **17**: 153, 1945.

3. Barker, N. W.; Nygaard, K. K.; Walters, W., and Priestley, J. T.: A Statistical Study of Postoperative Venous Thrombosis and Embolism, Proc. Staff Meet., Mayo Clin. **16**: 33, 1941.

4. Rössle, R.: Ueber die Bedeutung und die Entstehung der Wadenvenenthrombose, Virchows Arch. f. path. Anat. **301**: 180, 1937.

5. Neumann, R.: Ursprungszentren und Entwicklungsformen der Beinthrombose, Virchows Arch. f. path. Anat. **301**: 708, 1938.

6. Frykholm, R.: The Pathogenesis and Mechanical Prophylaxis of Venous Thrombosis, Surg., Gynec. & Obst. **71**: 307, 1940.

7. Hunter, W. C.; Sneeden, V. D.; Robertson, T. D., and Snyder, G. A. C.: Thrombosis of the Deep Veins of the Legs: Its Clinical Significance as Exemplified in 351 Autopsies, Arch. Int. Med. **68**: 1 (July) 1941.

8. MacKay, W.: The Blood Platelet: Its Clinical Significance, Quart. J. Med. **24**: 285, 1931.

9. Wright, H. P.: The Adhesiveness of Blood Platelets in Normal Subjects with Varying Concentrations of Anticoagulants, J. Path. & Bact. **53**: 255, 1941; The Changes in Adhesiveness of the Blood Platelets Following Parturition and Surgical Operation, ibid. **54**: 461, 1942.

10. Ochsner, A.: Intravenous Clotting, Surgery **17**: 240, 1945.

11. Ochsner, A., and DeBakey, M.: Thrombophlebitis and Phlebothrombosis: C. Jeff Miller Lecture, South. Surgeon **8**: 269, 1939; Therapy of Thrombophlebitis and Phlebothrombosis, Arch. Surg. **40**: 208 (Feb.) 1940; Therapeutic Considerations of Thrombophlebitis and Phlebothrombosis, New England J. Med. **225**: 207, 1941.

12. Duryea, A. W.: Medical Treatment of Thrombophlebitis, Bull. New York Acad. Med. **20**: 604, 1944.

13. Bauer, G.: A Venographic Study of Thromboembolic Problems, Acta chir. Scandinav. (supp. 61) **84**: 1, 1940.

approach at the source, therapy must be confined to either an interruption of the vascular stream proximal to the site of clot formation or to rendering the blood incoagulable.

Division of thromboembolic disease into thrombophlebitis and phlebothrombosis is purely arbitrary, since elements of both may be present in any case of venous thrombosis. In the former, clotting is believed to be the result of alteration of the vascular endothelium from mechanical trauma, bacterial invasion or chemical injury, while in the latter it may be due to venous stasis or alterations in the cellular and fluid constituents of the blood.

Many postoperative and postpartum venous thromboses result from an infective initiating factor, with consequent thrombophlebitis. In these cases, diagnosis is relatively simple and is based on the presence of fever, local pain, swelling and tenderness. The changes in the vascular endothelium usually cause the clot to be firmly attached to the vessel wall. Such a clot is unlikely to become detached unless (1) a red clot formed proximal to the mixed thrombus is broken off (which occurs in 10 to 15 per cent of cases) or (2) suppurative liquefaction of the clot occurs with the production of infective emboli.

In bland phlebothrombosis, on the other hand, the clot is loosely attached to the vessel wall and consists in the main of a red clot which waves freely in the vascular stream. The onset of clotting is insidious, and the usual clinical features of inflammation are absent. Localized calf or plantar pain and positive calf tenderness on dorsiflexion of the foot, Homans' sign,[14] establish the diagnosis, which may at times be confirmed by phlebography. The value of the latter procedure, first introduced by dos Santos [15] and popularized by Bauer,[13] Fine [16] and others,[17] has been questioned because of the unpredictable results obtained by the technics in use. In practice it has been common experience that, when information was most urgently needed, the phlebograms were equivocal or uninformative. Unfortunately, at times the first evidence of phlebothrombosis may be an alarming or even fatal pulmonary embolization.

The surgical approach to the problem of thromboembolism was first initiated in America by Homans [18] and later elaborated by Welch and Faxon,[19] Fine,[16] Allen and his associates,[20] de Takats [21] and others. The knowledge that the majority of such emboli stem from the veins of the lower extremities led these investigators to divide the suspected vein, after preliminary thrombectomy, on the faintest suspicion of phlebothrombosis. Indications for vein ligation have been based for the most part on clinical signs, whether or not corroborated by positive phlebograms (Allen,[22] Ochsner [23]).

In the few years during which unilateral superficial femoral vein ligation has been practiced, it has become apparent that fatal pulmonary emboli may derive from an unsuspected thrombotic process on the contralateral side, so that bilateral superficial vein interruption has now become common practice. Even this procedure, the magnitude of which is unduly minimized by recent observers, does not offer absolute protection against embolization, although Allen [22] reports only 5 per cent of subsequent sublethal embolization following bilateral superficial femoral vein ligation, with no instance of a fatal embolus in 579 femoral vein interruptions. Nevertheless there are known fatalities in which the offending embolus originated from the profunda femoris vein proximal to the site of ligation of the superficial femoral vein. This has prompted Linton [22] to divide the common femoral vein. The resultant edema from this procedure has admittedly been troublesome and has been observed to persist for a year or two or longer. Since embolization from the profunda femoris may occur, Homans [24] has been impelled to advocate common iliac and even inferior vena cava ligation. However, Homans admits that technical difficulties militate against thrombectomy, particularly in a phlebothrombosis of long standing, so that ligation must of necessity be carried out in continuity, even if a clot is present proximal to the ligature. Obviously embolization from the proximal thrombus is not beyond the realm of possibility.

It must be stated that, although the majority of emboli derive from the peripheral veins, the initiating site may at times be the pelvic veins, for which surgical intervention, if it is to be effective, must perforce be a formidable procedure. Finally, in those cases of long standing thrombophlebitis, phlegmasia alba dolens, in which multiple infarcts have occurred, any surgical intervention short of vena cava ligation offers little prospect of cure.

It thus appears that the pendulum of surgical therapy has reached the peak of its swing and the relatively innocuous procedures of a few years ago are being supplanted by operations of considerable magnitude. In view of the failure to achieve a complete thrombectomy consistently in cases in which adherent clot was found far proximal to the phlebotomy or because of the hazard of subsequent postoperative embolizations, whether or not they are sublethal, Bancroft [25] has advocated the postoperative use of heparin. Indeed, Allen [22] admits that for patients with multiple infarcts heparinization has been used with definite benefit.

Although saving of life is the prime consideration of surgery, the resultant edema is most troublesome to the patient. Operative procedures which interrupt not only venous but also lymphatic channels contribute considerably to this edema. Admittedly, conservative treatment without heparin, consisting in the main only of bed rest and sedation, may occasion considerable edema in those who survive. In our experience the supplemental use of subcutaneous heparin results in minimal residual edema, certainly far less than that observed following operative intervention.

Briefly, it is apparent that the surgical approach, while efficacious in the majority of instances, has its limitations, although in all fairness it must be stated that a great number of lives have been saved which otherwise would have been lost if surgical interruption

14. Homans, J.: Circulatory Diseases of the Extremity, New York, Macmillan Company, 1939; Thrombosis of the Deep Veins of the Lower Leg Causing Pulmonary Embolism, New England J. Med. **211:** 933, 1939.
15. dos Santos, J. G.: Direct Venography, Conception, Technic, First Results, J. internat. de chir. **3:** 625, 1938.
16. Fine, J.; Frank, H. A., and Starr, A.: Recent Experiences with Thrombophlebitis of the Lower Extremity and Pulmonary Embolism, Ann. Surg. **116:** 574, 1942. Starr, A.; Frank, H. A., and Fine, J.: The Venographic Diagnosis of Thrombophlebitis of the Lower Extremities, J. A. M. A. **118:** 1192 (April 4) 1942.
17. Dougherty, J., and Homans, J.: Venography: A Clinical Study, Surg., Gynec. & Obst. **71:** 697, 1940. Welch and Faxon.[19]
18. Homans, J.: Venous Thrombosis in the Lower Limbs: Its Relation to Pulmonary Embolism, Am. J. Surg. **38:** 316, 1937.
19. Welch, C. E., and Faxon, H. H.: Thrombophlebitis and Pulmonary Embolism, J. A. M. A. **117:** 1502 (Nov. 1) 1941.
20. Allen, A.; Linton, R. R., and Donaldson, G. A.: Thrombosis and Embolism: Review of 202 Patients Treated by Femoral Vein Interruption, Ann. Surg. **118:** 728, 1943.
21. de Takats, G.: Surgical Treatment of Thromboembolism and Its Sequelae, Bull. New York Acad. Med. **20:** 623, 1944.
22. Allen, A. W.; Linton, R. R., and Donaldson, G. A.: Venous Thrombosis and Pulmonary Embolism, J. A. M. A. **128:** 397 (June 9) 1945.
23. Ochsner, A., in discussion on Allen, Linton and Donaldson,[22] p. 403.
24. Homans, J.: Quiet Venous Thrombosis of the Lower Limbs: Preferred Levels for Interruption of Veins; Iliac Section or Ligation, Surg., Gynec. & Obst. **79:** 70, 1944.
25. Bancroft, F. W.: Proximal Ligation and Thrombectomy for Phlebothrombosis of the Femoral and Iliac Veins, Ann. Surg. **121:** 175, 1945.

of the venous systems had not been practiced since no alternative conservative method of management has heretofore been generally available.

In reviewing the shortcomings of surgery for the treatment of thromboembolic disease, it is apparent that the anticoagulants assume prime importance. The properties of heparin which render it uniquely applicable in thromboembolic disease are that it prevents the formation of thromboplastin from platelets, it prevents, with the aid of a plasma cofactor, the conversion of prothrombin to thrombin, and finally it forms with serum albumin a strong antithrombin (Quick [26]). In other words, the continued formation of blood clot is inhibited by heparin, and repair of existing thrombi inevitably takes place at a more rapid tempo. It is evident that, regardless of the site of the thrombosis, heparin may be utilized because of its systemic effect. Its value in the prophylaxis and treatment of thromboembolic diseases has been established by numerous investigators, including Crafoord [27] and Murray.[28]

The routine use of heparin, however, has been limited by the expense, by the huge amount of drug required for the individual case and by the cumbersome method of administration, which requires a continuous venoclysis or repeated daily intravenous dosage. The restriction of motion of the patient, the almost absolute certainty that superficial angiitis would eventually occur at the site of injection and the haphazard control of the clotting time with these methods of administration render heparin therapy useless unless constant untiring supervision is available.

TABLE 1.—*Heparin/Pitkin Menstruum Formulas*

	With Vasoconstrictors			
	LP-0 (Mg.)	LP-8 (Mg.)	LP-9 (Mg.)	LP-12 (Mg.)
Crystalline sodium salt of heparin	100.0	200.0	100.0	150.0
Epinephrine hydrochloride	1.0	1.0	1.0	1.0
Ephedrine sulfate	25.0	25.0	25.0	25.0
Chlorobutanol	0.5	0.5	0.5	0.5
Eucupin dihydrochloride	1.0	1.0	1.0	1.0
Pitkin menstruum, q. s. ad	1.0 cc.	2.0 cc.	2.0 cc.	1.0 cc.
	Without Vasoconstrictors			
	LP-14 (Mg.)	LP-11 (Mg.)	LP-10 (Mg.)	LP-13 (Mg.)
Crystalline sodium salt of heparin	100.0	200.0	100.0	150.0
Chlorobutanol	0.5	0.5	0.5	0.5
Eucupin dihydrochloride	1.0	1.0	1.0	1.0
Pitkin menstruum, q. s. ad	1.0 cc.	2.0 cc.	2.0 cc.	1.0 cc.

In an attempt to achieve prolonged absorption of heparin, pellet and capsule implantation in experimental animals was attempted. Erratic, unpredictable effects were observed. However, a slower and more equable distribution of heparin was obtained by incorporation of the drug in the Pitkin menstruum,[29] developed to regulate the rate of release of water soluble drugs injected intramuscularly or subcutaneously.[30]

The ingredients of the Pitkin menstruum are gelatin 15 to 30 per cent, dextrose 5 to 12 per cent, glacial acetic acid 0.5 per cent and sufficient distilled water to make 100 per cent. The rate of liberation of the contained heparin is inversely proportional to the viscosity of the menstruum; the optimum percentages of gelatin and dextrose were found to be 18 and 8 per cent respectively for the preparation containing heparin.

Heparin/Pitkin menstruum is a preparation of various amounts of heparin sodium salt, with or without vasoconstrictor drugs, dissolved in the Pitkin menstruum. This is done so that the dosage may be varied as indicated in the treatment of the individual patient. In general, the anticoagulant action of heparin sodium salt combined with vasoconstrictor drugs (in the menstruum) is more prolonged than the same amount of heparin sodium salt (in the menstruum) without vasoconstrictor drugs. In thromboembolic venous disease heparin with vasoconstrictor drugs is customarily employed. It is more advisable, however, to use heparin without vasoconstrictor drugs in thromboembolic arterial disease in order to eliminate the complicating factor of arterial spasm. This necessitates more frequent administration because of the more rapid depletion of the individual deposit.

The ampules which have been prepared for clinical use contain various amounts of heparin sodium salt, with or without vasoconstrictor drugs, and are as in table 1.

Body weight and individual reactivity dictate the amount of heparin/Pitkin menstruum to be used in a given case. For the initial injection, body weight is used as a guide. Patients weighing up to approximately 150 pounds (67.8 Kg.) should be given an initial dose of 300 mg. of heparin sodium salt; patients over this weight should be given an initial dose of 400 mg. Subsequently the dosage should be adjusted according to the intensity of the "heparin effect" as estimated by the coagulation time.

Any desired dose of heparin, with or without vasoconstrictor drugs, can be given by combining the contents of two or more ampules. It has never been necessary to employ more than 400 mg. of heparin for any single deposit. This dose is arrived at by combining two ampules, each containing 200 mg. of the drug. When ampules which contain the vasoconstrictor drugs are used, not more than one such ampule should be included in a combination of ampules administered in one single injection.

METHOD OF ADMINISTRATION OF HEPARIN/PITKIN MENSTRUUM BY SUBCUTANEOUS INJECTION

1. Warm the ampule(s) gently by immersing in a glass of hot tap water until the contents become fluid.

2. Shake well to disperse any precipitated material.

3. Draw the contents into a sterile 5 cc. or 10 cc. syringe, using a sterile needle, gage 18, of 2 inches length. After the syringe has been filled, attach a sterile needle, gage 19 or 20, of 2 inches length, for the actual deposition.

4. Inject the contents immediately into the deep subcutaneous tissues, preferably in the anterior or lateral aspect of the thigh. When more than one subcutaneous deposit is required, use the right and left thighs alternately and avoid sites of previous injections. Do not inject into sites where pressure may be exerted on the injection area.

5. Be certain that the contents of the syringe are not too hot prior to the injection. The syringe and contents should feel only slightly warm.

6. Do not apply either heat or cold to areas of deposition at any time.

Use the entire contents of the ampule(s) (300 mg. heparin sodium salt for the average individual). This dose should be sufficient to keep the patient heparinized for at least two days. If the patient must be heparinized for a longer period, administer the 300 mg. every

26. Quick, A. J.: The Hemorrhagic Diseases and the Physiology of Hemostasis, Springfield, Ill., Charles C Thomas, Publisher, 1942.

27. Crafoord, C., and Jorpes, E.: Heparin as a Prophylactic Against Thrombosis, J. A. M. A. **116**: 2831 (June 28) 1941.

28. Murray, G. D. W.: Heparin in Surgical Treatment of Blood Vessels, Arch. Surg. **40**: 307 (Feb.) 1940. Murray, G., and MacKenzie, R.: Postoperative Thrombosis and Embolism, Am. J. Surg. **57**: 414, 1942.

29. Roche-Organon, Inc., Nutley, N. J., supplied heparin in the Pitkin menstruum. Dr. Ralph D. Shaner of that organization aided with his interest and cooperation.

30. Loewe, L.; Rosenblatt, P., and Lederer, M.: A New Method of Administering Heparin, Proc. Soc. Exper. Biol. & Med. **50**: 53, 1942. Loewe and Rosenblatt.[30]

second day throughout the requisite period. After two or three deposits on this dose schedule it may be possible, if the patient's response warrants it and if the coagulograms are satisfactory, to space the remaining implants every third day. If the patient receives a blood transfusion during the period of heparinization, administer a standard dose of 300 mg. immediately following the transfusion, irrespective of when or how many previous deposits have been given.

METHOD OF FOLLOWING THE PATIENT'S CLINICAL COURSE

The effect of heparin is judged by and based on determination of the blood coagulation time, which should be done at least once a day during the period of heparinization. Determination by means of the capillary tubes is totally inaccurate and should not be used. A modification of the Lee-White method [31] for determination of blood coagulation time is recommended. The procedure is as follows:

1. Place four chemically clean dry 75 by 10 mm. test tubes in a rack.
2. With a sterile dry syringe and needle withdraw a little less than 2 cc. of venous blood from the heparinized patient.
3. Distribute a little more than 0.35 cc. of blood into each test tube and allow the tubes to stand until the test is completed.
4. The test is timed by stop watch from the moment the vein is negotiated to the time clotting is noted in the test tubes. The normal values usually range from nine to fifteen minutes.

SUGGESTIONS AND PRECAUTIONS

1. All glassware, syringes and needles must be absolutely dry. Moisture, alcohol and other substances invalidate the determination.
2. The vein must be cleanly negotiated. If difficulty is encountered, it is best to use a fresh needle and syringe. Even a small amount of tissue juice aspirated into the syringe will give a fallacious result.
3. Once the blood is placed in the test tubes, they must be disturbed as little as possible while observing for the end point. It will be noticed that well heparinized blood will sediment very rapidly. The tube should not be shaken after sedimentation of the blood. Look for clotting in the red cell layer as well as in the plasma layer by gently tilting the tubes. In unclotted blood the red cell layer will flow slowly as the tube is angled.
4. If clotting occurs at different times in the various tubes, average the three closest figures.
5. Excessively high coagulation times—over an hour—are unnecessary and indicate waste of the anticoagulant drug.
6. The effect of a single therapeutic deposit should last for forty-eight hours or more. Satisfactory results have been attained over protracted periods (five weeks) with as little as 2,300 mg. of heparin. At least 10,500 mg. would have been required to achieve the same results with intravenous commercial aqueous heparin had it been feasible to administer it over such a long span of time.

REACTIONS AND COMPLICATIONS IN THE USE OF HEPARIN/PITKIN MENSTRUUM: THEIR TREATMENT

1. Following the administration of LP-0, LP-8, LP-9 and LP-12 (ampules containing vasoconstrictor drugs) the patient will occasionally complain of palpitation and nervousness. These reactions require no treatment and disappear within a short time.
2. Digitalis inhibits the anticoagulant action of heparin. Avoid the use of this drug during periods of heparinization.
3. Intragluteal administration may be employed with perhaps less local discomfort, but absorption is too rapid. An important advantage of the subcutaneous approach is that the anticoagulant effect may be considerably retarded or accelerated by the application of ice bags or heat, respectively, to the site of injection; it may be suspended altogether by means of prolonged local refrigeration and/or pressure above and below the site, together with adjunct measures such as the transfusion of fresh whole blood or globin injections.
4. The administration of subcutaneous heparin/Pitkin menstruum is accompanied by a variable degree of fever, and pain, swelling and tenderness at the site of inoculation. These discomforts, due primarily to the subcutaneous deposit of heparin,[32] are usually not excessive, but adequate sedation should be prescribed. Even when more pronounced, these disadvantages of the subcutaneous administration are far outweighed by the benefits of the treatment and the added comfort of knowing that with the subcutaneous route the rate of release of the drug is under control at all times.

RESULTS; ANALYSIS OF CASES

The original publication [33] reported 15 cases of thrombophlebitis or phlebothrombosis successfully heparinized by this method. The series of 125 cases,[34] presented in table 2, which is the subject of the present report, represents virtually all the types of venous thromboembolic disease. Some of the categories have afforded more cases than others, but on the whole there are a sufficient number of cases for purposes of observing and evaluating the clinical deportment of subcutaneous heparin in thromboembolic disease. The results have been most gratifying, being signally successful in thrombophlebitis irrespective of etiology (cases 5, 7, 8, 9, 10 and 11). The criteria of satisfactory response are the rapidity of subsidence of edema, prompt improvement in pain and discomfort, reduction in morbidity and the degree of residual edema, and the clinical behavior in the presence of pulmonary embolization.

TABLE 2.—*Composite of All Cases of Venous Thromboembolic Disease Treated with Subcutaneous Heparin in the Pitkin Mentsruum*

Classification of Thromboembolic Disease	Number of Cases	Statistics of Pulmonary Embolism: Number of Cases	Deaths: Number	Deaths: Percentage
Thrombophlebitis and/or phlebothrombosis, postoperative	46	14	2	14+
Thrombophlebitis, thrombophiles, carcinoma, varicose veins, etc.	32	13	0	0
Thrombophlebitis and/or phlebothrombosis, venous ligation	13	9	1	11+
Thrombophlebitis, postpartum	14	3	0	0
Thrombophlebitis, postinfectious	9	0	0	0
Thrombophlebitis, post-traumatic	6	3	1	33+
Thrombophlebitis, migrans	5	0	0	0
Total	125	42	4	9.5

The final judgment in any treatment program for thromboembolic disease is predicated on the statistics with respect to pulmonary embolization. The detailed clinical data relative to pulmonary embolization in this series of 125 cases will be made the subject of a comprehensive report. It is noteworthy however that, of the 125 patients, 42 had from one to six pulmonary embolizations prior to initiating subcutaneous heparin therapy. There were four fatalities in this series of 42 cases, or

31. Gradwohl, R. B. H.: Clinical Laboratory Methods, ed. 3, St. Louis, C. V. Mosby Company, 1943, p. 514.

32. Walker, J., Jr.: The Efficacy of Heparin Administered by Intravenous, Intramuscular and Subcutaneous Routes and a Study of the Effect of Five Bacteriostatic Agents on Heparin Action, Surgery **17**: 54, 1945.

33. Loewe, L., and Rosenblatt, P.: A New Practical Method for Subcutaneous Administration of Heparin: Preliminary Report, Am. J. M. Sc. **208**: 54, 1944.

34. This series of cases was recruited mostly from the Departments of Surgery, Medicine, Gynecology and Obstetrics of the Jewish Hospital, Brooklyn.

9.5 per cent. Brief comment concerning these four deaths is essential in order to gain proper perspective regarding this aspect of our problem. Two of the fatalities came early in our experience and served as an object lesson for standardizing and formulating our present program of therapy and dosage schedules (case 1). The third occurred in an obese woman who developed thrombophlebitis with pulmonary emboli following mastectomy for advanced massive carcinoma. This is considered a treatment failure although the patient was in profound circulatory collapse throughout the entire postoperative period and there was some doubt as to the cause of death, no necropsy being performed. The fourth fatality followed sequential femoral vein ligation for recurrent pulmonary embolization incidental to postoperative phlebothrombosis. Subcutaneous heparin was discontinued prematurely two days after the initial left femoral ligation because the pulmonary findings were attributed to virus pneumonia, which was prevalent at the time. The right femoral vein was ligated about ten days after the left femoral vein ligation. Lethal pulmonary embolization followed the third day after the right femoral vein ligation; necropsy disclosed old adherent thrombi in the left iliac and left hypogastric veins which were probably the source of the emboli found occluding the right pulmonary artery and main branch of the left lower lobe. This case must be catalogued as a treatment failure for both thrombectomy and vein ligation and supplemental subcutaneous heparin therapy, although the latter was suspended after much too short a span of treatment. As an offset to these treatment failures mention may be made of 4 patients with multiple pulmonary emboli despite vein ligation with complete recovery following the use of subcutaneous heparin preparation (case 4).

A particularly significant and informative group consisted of the 9 patients who were successfully treated with heparin in the Pitkin menstruum following single or multiple massive pulmonary embolizations without any manifestations of peripheral vein involvement; these patients could not conceivably be subjects for proximal vein ligation (case 3). Finally, it is worthy of comment that in 5 patients subcutaneous heparin was successfully employed following failure with dicumarol and/or aqueous heparin by vein (case 6).

CASE 1.—*Postoperative femoral phlebothrombosis with multiple pulmonary emboli; apparent excellent response to subcutaneous heparin; anticoagulant effects had disappeared when patient was allowed out of bed; lethal pulmonary embolus.*[35]

N. S. W., a white man aged 46, had a subtotal gastrectomy performed for gastric ulcer with carcinomatous degeneration. The postoperative course was complicated by phlebothrombosis of the left lower extremity, which was followed by two episodes of pulmonary infarction, corroborated roentgenographically. The patient was treated with subcutaneous heparin and given four injections totaling 1,200 mg. of heparin over a period of eleven days. The clinical signs in the left lower extremity subsided and the patient was allowed out of bed four days after the last heparin deposit. In the process of getting out of bed he suffered a massive pulmonary embolization and died.

The unfortunate outcome in this early case served as an object lesson. It was apparent that the patient should not have been allowed out of bed prematurely and at a time when he was not actively heparinized. Cases of phlebothrombosis with pulmonary infarction require periods of heparinization longer than the ten to fourteen days usually sufficient for uncomplicated venous thrombosis. Subsequent patients in this category were therefore mobilized after a minimum three week span of treatment and during the stage of active heparinization. With this program the results have been signally successful.

CASE 2.—*Postoperative bilateral phlebothrombosis successfully treated with subcutaneous heparin.*

H. B., a white man aged 52, was admitted to the Jewish Hospital of Brooklyn on Jan. 31, 1943 with a diagnosis of perforated peptic ulcer. This was operated on immediately and primary closure was performed. On February 8 the patient had an evisceration, which was reduced under general anesthesia. On March 6 he developed a bilateral phlebothrombosis of the deep femoral veins. He was treated with heparin, which was administered by the subcutaneous method. He was given a total of 1,200 mg. of the drug in six deposits over a period of fourteen days. The patient made a complete and uneventful recovery without sequelae.

This was a case of simple phlebothrombosis following a surgical procedure. A two weeks course of treatment with subcutaneous heparin was sufficient to control the thrombotic complication despite its bilateral distribution.

CASE 3.—*Multiple postoperative pulmonary infarctions without evidence of peripheral phlebothrombosis; unsuccessful outcome with conservative management and intravenous heparin; successfully treated with subcutaneous heparin.*[36]

C. L., a white man aged 26, had an appendectomy for acute appendicitis. Eight days postoperatively he suffered a right pulmonary embolization followed by bloody expectoration. He was treated conservatively with bed rest, sedatives and oxygen. Sixteen days after operation there was another episode of pulmonary embolus with radiographic signs of right lung infarction. The following day intravenous heparin was instituted, 200 mg. daily being given by continuous drip. During this period there were febrile reactions necessitating frequent interruptions of the venoclysis. On the thirty-first postoperative day phlebitis of the left arm and foot of the regional angiitis variety was noted. This progressed despite the intravenously administered heparin. On the thirty-fifth postoperative day there was another massive pulmonary infarction while intravenous heparin was still being given. The following day subcutaneous heparin therapy was instituted. A total of 1,600 mg. of heparin in five doses was deposited over a period of sixteen days. The patient responded satisfactorily and was allowed out of bed while still actively heparinized. He was discharged from the hospital without further trouble and has remained asymptomatic.

Of significant interest in this case was the fact that three massive pulmonary infarctions occurred without evidence of thrombotic disease in the lower extremities other than the superficial processes due to the continuous venoclysis. This case illustrates the almost certain futility of proximal venous ligation, since it was impossible to know where the emboli originated. Furthermore, the success attending the use of subcutaneous heparin is in direct contrast to the failure of the aqueous preparation when given by vein.

CASE 4.—*Postoperative thrombophlebitis of recurrent and migratory character; bilateral saphenous vein ligations with postligation pulmonary embolizations; thrombophlebitis of the left femoral system successfully treated with subcutaneous heparin.*[37]

E. S., a white married woman aged 35, a registered nurse, was admitted to the Jewish Hospital of Brooklyn with a history of hysterectomy for fibroid uterus seven months previously at Misericordia Hospital, New York. Postoperatively she developed a right saphenous thrombophlebitis and was kept in bed for six weeks. Two weeks after discharge she developed a left saphenous thrombophlebitis. This subsided, but thereafter

35. Courtesy of Dr. P. C. Potter, Doctors Hospital, New York.

36. Courtesy of Dr. Abraham Mandelberg, Israel Zion Hospital, Brooklyn.

37. Courtesy of Dr. Lester Breidenbach.

recurrent bouts of phlebitis took place until three months prior to admission, when first one and then the other saphenous vein was ligated. Following the second ligation she suffered several episodes of pulmonary embolization. With conservative management the lungs gradually cleared and she was discharged from the hospital. Several days prior to admission to this hospital she developed a severe thrombophlebitis involving the deep left femoral system. She was treated with subcutaneous heparin and received a total of 1,800 mg. in six doses over a period of fourteen days. She was discharged on the twentieth hospital day and has remained well to date, eighteen months after therapy.

This case is of particular interest since the prophylactic vein ligations prevented neither subsequent pulmonary embolization nor the formation of fresh thrombi in the deep femoral system of veins. Therapy with subcutaneous heparin abruptly interrupted the migratory and recurrent character of the disease, and the patient has remained well.

CASE 5.—*Initial, clinically obscure, thrombophlebitis with migration and pulmonary infarctions; bilateral femoral vein ligations with postligation heparinization.*[38]

N. G., a white woman aged 50, a physician's mother, began to complain of pain in the left calf region three weeks prior to admission. Two weeks later there was swelling of the left leg. On the day of admission there was a sudden onset of shortness of breath associated with pain in the left side of the chest made worse by deep inspiration. There was no hemoptysis. The patient was treated expectantly. Although repeated examinations were made, a definite diagnosis of thrombophlebitis was not possible. During the fourth hospital week there was a sudden rise in temperature unassociated with physical findings. During the sixth hospital week there was a definite pulmonary episode. The week previously the patient had been complaining of aching pain throughout the right leg, but physical findings had been negative. At this time it was decided that the patient had a bilateral femoral thrombophlebitic process with multiple pulmonary infarctions. X-ray and electrocardiographic evidence indicated that there had been at least three such episodes. Phlebograms were attempted but were unsuccessful. It was decided that a bilateral femoral vein ligation be done. At operation Dr. G. P. Pennoyer found the left femoral vein to be completely thrombosed and the right thrombosed and partially organized. Because of the proximal extent of the thrombotic process it was thought that operative interruption of the continuity of the veins would probably not suffice. Accordingly, ten hours following the procedure the patient was started on subcutaneous heparin therapy. She was given a total of 1,500 mg. of heparin over a period of twenty-three days in five deposits. At the end of this time she was allowed out of bed. On being allowed to walk about, she noticed swelling of both legs; but this was controlled somewhat by the use of elastic stockings.

The importance of this case lies in the fact that bilateral femoral ligation was not considered sufficient to prevent the possibility of future pulmonary embolization. Despite the surgery, therefore, adjuvant therapy with subcutaneous heparin was necessary to treat this patient successfully.

CASE 6.—*Postoperative and traumatic thrombophlebitis; unsuccessful prophylactic administration of dicumarol and intravenous heparin; prompt response to subcutaneous heparin.*[39]

J. M., a Negro aged 37, underwent a right inguinal herniorrhaphy. During the course of the operation the femoral vein was punctured and it bled freely. Bleeding was controlled by packing followed by dissection below the inguinal ligament, where pressure on the femoral vein was applied. The rent was then closed without difficulty by means of several fine silk sutures. Postoperatively dicumarol was given by mouth and heparin by continuous intravenous drip, with satisfactory prolongation of the coagulation time. Dicumarol was continued for eight days with no change in the prothrombin time. On the sixth, eighth and thirteenth postoperative days subcutaneous hematomas were aspirated from the upper end of the wound. On the fourteenth postoperative day the patient developed a typical and massive thrombophlebitis of the right lower extremity. Two days later therapy with subcutaneous heparin was begun. He received a total of 1,200 mg. of heparin given in three doses over a period of ten days. The obvious diminution of swelling and tenderness on the second day were remarkable, and the temperature subsided on the ninth day. He was discharged on the forty-third postoperative day in excellent condition.

This case was noteworthy because of the failure of dicumarol and intravenous heparin to prevent the formation of a clot in a femoral vein accidentally injured during herniorrhaphy. Despite this evident thrombotic tendency, the response to subcutaneous heparin was prompt and sustained.

CASE 7.—*Postcesarean section; left femoral vein thrombophlebitis successfully treated with subcutaneous heparin.*[40]

B. E., a white woman aged 30, primipara, secundigravida, had an elective cesarean section on June 14, 1944. Thirteen days later she developed an acute thrombophlebitis of the left femoral vein. Symptoms and signs increased in intensity during the next three days, and therapy with subcutaneous heparin was begun on the sixteenth postoperative day. She received a total of 1,100 mg. of heparin over a period of ten days in eight doses. She responded rapidly and was allowed out of bed on the tenth day of treatment and was discharged well several days later.

TABLE 3.—*Measurements of Extremities in Case 9*

	April 27		May 16	
	Right	Left	Right	Left
Ankle	19.7 cm.	22.2	19.0	20.0
Calf	30.2	33.4	27.0	28.6
Thigh	48.5	58.7	47.0	48.3

CASE 8.—*Postpartum unilateral phlegmasia alba dolens successfully treated with subcutaneous heparin.*[41]

L. R., a white woman aged 25, developed a massive thrombophlebitis of the left lower extremity three weeks post partum. She was given a total of 1,500 mg. of heparin in five injections over a period of ten days. At the end of this time local symptoms had subsided and measurements of the lower extremities, which initially showed decided disproportion, were now equal. She was discharged on the fifteenth hospital day.

Of interest in this case was the rapid resolution of the thrombotic process in the left lower extremity. With the customary conservative management it can be stated with little fear of contradiction that the patient, barring complications, would have been bedridden for from four to six weeks with a protracted massive residual edema. As in this instance, it is possible to render these patients ambulatory without appreciable edema in two weeks with the use of subcutaneous heparin.

CASE 9.—*Thrombophlebitis, postinfectious, successfully treated with subcutaneous heparin.*[42]

A. G., a white youth aged 17, developed enormous swelling of the entire left lower extremity and abdomen, with tenderness and pain over the iliofemoral system of veins, two weeks following recovery from measles. Subcutaneous heparin therapy was started on the fourth day after the onset of the thrombophlebitis and continued for twenty-one days. This required ten deposits totaling 4,000 mg. of heparin. Measurements of the extremities portray the improvement (table 3).

38. Courtesy of Dr. A. J. Antenucci, Roosevelt Hospital, New York.
39. Courtesy of Dr. G. A. Fowler, St. Luke's Hospital, New York.
40. Courtesy of Drs. A. J. Geiger and J. H. Grossman, New Haven Hospital, New Haven, Conn.
41. Courtesy of Dr. Abraham Wallerstein, Beth Moses Hospital, Brooklyn.
42. Courtesy of Dr. H. R. Epstein, Jewish Hospital of Brooklyn.

This patient was discharged with very little residual edema. A remarkable feature of the case was the rapid response to therapy when consideration is given to the massive thrombotic involvement of the lower extremity.

CASE 10.—*Post-traumatic migratory thrombophlebitis with repeated episodes of pulmonary embolization successfully treated with subcutaneous heparin.*[43]

B. G., a white man aged 50, was admitted to the Jewish Hospital of Brooklyn because of thrombophlebitis of the right lower extremity with onset two and one-half weeks following trauma to the leg. Bed rest was instituted, but there were repeated episodes of pulmonary embolus. Approximately one month after hospitalization there was a sudden attack of pain in the left calf associated with tenderness, swelling and a positive Homan's sign. The diagnosis of left calf vein thrombophlebitis was made. It was decided at this time to give subcutaneous heparin, since expectant treatment had been a failure. The patient was given 1,800 mg. of heparin over a period of twenty-one days in seven deposits. He was discharged from the hospital clinically well.

This case represents an intractable, progressive variety of thrombophlebitis following trauma, with episodes of pulmonary embolus. Conservative management was thoroughly unsatisfactory, since it prevented neither embolization nor migration of the clot. The response to subcutaneous heparin was rapid and apparently permanent.

CASE 11.—*Recurrent migratory phlebitis successfully treated with subcutaneous heparin; no recurrence in two years.*[44]

N. S. R., a white man aged 48, a physician, had had attacks of migratory phlebitis over the past eighteen years. The attacks recurred every one or two years. In 1942 he had a right saphenous vein ligation performed. Two weeks prior to admission to the Doctors Hospital, New York, on Oct. 21, 1943, he had a recurrence of phlebitis involving the veins of the median aspect of the left leg. He was given a total of 1,700 mg. of heparin by the subcutaneous route in five injections over a period of fifteen days. He was discharged asymptomatic and has remained well to date.

This case is of interest because the patient, a physician, had been treated in the past by all known methods. His response to subcutaneous heparin was prompt and apparently lasting. Similar cases treated subsequently have consistently shown the same rapid improvement.

COMMENT

It is evident from a critical review of the cases (table 2) that a comprehensive trial of subcutaneous heparin in the Pitkin menstruum has been carried out with good results. While other expedients, such as sulfonamides and penicillin, may be used in conjunction with it, heparin alone in clinically established thrombophlebitis irrespective of etiology is attended with consistent beneficial, if not dramatic, results. These include diminution of temperature, pain and swelling, which often become manifest within a few hours after initiation of therapy. This improvement is predicated on the limitation in the progress of the formed thrombus, while the original inflammation expends itself and the thrombus either resolves or becomes organized. Since there is no further actual propagation of thrombus, there is a rapid and well defined diminution in vasospasm. In all cases morbidity is lessened and convalescence accelerated. It is felt that prolonged, deforming and incapacitating edemas are further prevented in these patients by blocking the deposition of fibrin in the perivenous lymphatics. In unsuccessful cases of vein ligation followed by pulmonary embolization in which the subcutaneous heparin therapy has been effective, the preparation has also aided materially in diminishing the subsequent lower extremity edema.

Failures have been due to an insufficient knowledge of the behavior of thromboembolic disease either during or immediately after heparin therapy. These failures occurred early in our experience, and the lessons learned have contributed materially to the present success of the method. In uncomplicated phlebothrombosis, heparinization need be continued only for ten to fourteen days, while cases complicated by pulmonary infarction, either single or multiple, require three to four weeks of continuous heparinization. The full heparin effect must be present when the patient is first allowed out of bed. These criteria are based on an expanded clinical experience.

We are aware of the fact that the surgical approach to the problem of thromboembolism aims at the disruption of continuity of the vascular stream between the most proximal tip of the clot and the cardiopulmonary area. We also know that the bulk of evidence suggests the lack of influence of heparin on preformed clot. Nevertheless, in our clinical experience we have had no instance of pulmonary embolus in the presence of adequate heparinization by the subcutaneous method.

Experiments are now in progress to determine the mutations of intravascular pathologic changes and the fate of the clot following subcutaneous heparin in order to correlate the morbid process, dosage schedule, span of treatment and other essential aspects of the therapeutic program.

After the institution of heparin therapy the liberal use of papaverine is recommended, ½ to 1 grain (0.032 to 0.06 Gm.) every four hours intramuscularly or even intravenously and, later, maintenance dosages by mouth. Smoking is strictly prohibited. Paravertebral block, although used extensively in arterial occlusions, is not used by us in thrombophlebitis as a routine measure, since we have found that venous spasm disappears promptly following administration of subcutaneous heparin.

Although truly comparative statistics of subcutaneous heparin and proximal vein ligation are not available, our roster of cases includes failures after vein ligation which were brought to a successful termination by heparin. As has been described earlier in this paper, the general systemic anticoagulant effect of heparin seems to us to be a more rational therapeutic weapon than local vein ligation, especially when the precipitating cause of thrombosis is not yet known and the initiating site of thrombosis can be ascertained in many cases only by vague and indeterminate clinical signs. The patient with phlebothrombosis is in a potentially precarious state in which additional manipulative and operative measures may induce embolization. The ready availability of immediate adequate and rational conservative treatment without moving the patient has caused vein ligation to be supplanted by subcutaneous heparin therapy in our clinic.

SUMMARY AND CONCLUSIONS

The treatment of venous thromboembolic disease with subcutaneous heparin in the Pitkin menstruum was attended with lessened morbidity, prompt and rapid clinical improvement, and little or no residual edema.

Treatment failures with other methods have subsequently ended in recovery following the routine administration of heparin in the Pitkin menstruum.

43. Courtesy of Dr. Maxwell Grossbard, Jewish Hospital, Brooklyn.
44. Courtesy of Dr. H. T. Hyman.

As a result of observations of its clinical deportment in 125 consecutive cases of thrombophlebitis and/or phlebothrombosis, the subcutaneous administration of heparin in the Pitkin menstruum is recommended as a safe, simple, practical and effective method for the conservative treatment of venous thromboembolic disease.

STREPTOMYCIN TREATMENT OF TULAREMIA

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Cincinnati

Since a published report,[1] together with unpublished work by ourselves and our associates, demonstrated that streptomycin exerted both bacteriostatic and bactericidal effects on Bacterium tularense in low concentrations in vitro, as well as definite curative properties for the experimental disease in rodents, this study was undertaken to determine the effectiveness of streptomycin therapy in human tularemia.

Seven patients were treated. Each had been infected by handling wild rabbits. All presented symptoms typical clinically of tularemia, and each developed specific serum agglutinins to 1:320 or higher. The causative agent was cultivated after mouse inoculation of primary lesion exudate from the first, third, fourth and fifth patients. The days of disease on which streptomycin therapy was instituted were the eighth, twenty-third, third, seventeenth, twentieth, fiftieth and one hundred and third respectively.

EVIDENCES OF MODIFICATION OF THE NATURAL COURSE OF DISEASE

The best objective criteria whereby changes from the usual course of disease may be detected are the number of days of temperature above 98.6 F., the duration of buboes and the number of bedridden days. Usually less useful for small groups are the durations of disease and of disability, and the number of days required for healing of ulcerated primary lesions. In the present series, however, the duration of primary lesions became important. Although the number of patients is too small for numerical comparisons, it is well to remember that the disease usually causes thirty-one days of fever, thirty-one days in bed, a duration of disease of four months characterized by buboes for 3.5 months, disability for 3.5 months, and a healing time for primary lesions of thirty-nine days.

PREPARATION OF STREPTOMYCIN

All streptomycin except a portion of that given to the seventh patient was from a single lot containing 150 units per milligram. Since this early lot had not been tested for sterility or for pyrogens, we dissolved accurately weighed amounts in sterile salt solution so that each 4 cc. dose would contain the desired unitage, adjusted the p_H to approximately 7.0, filtered the solution through Berkefeld N filters, and bottled it aseptically in slightly more than 32 cc. amounts, one bottle for each day of treatment.

STREPTOMYCIN ADMINISTRATION

The most frequently used dosage, 30,000 units every three hours intramuscularly for five days, was tentative and wholly arbitrary, based on available in vitro and in vivo experiences and on the sensitivity of Bacterium tularense in relation to that of other disease agents for which some knowledge of clinical dosage was at hand.

TOXICITY CONTROL STUDIES

In anticipation of possible toxic effects of streptomycin, fluid intake and urinary output were measured daily, urinalyses for albumin, casts and red blood cells were made daily or more frequently, blood nitrogen determinations were made every other day during drug administration, and estimations of hemoglobin, total red blood cells and white blood cells and differential leukocyte counts were made irregularly. Daily observations were made for possible dermal and psychic changes. This was routine for all patients. Since no evidence for drug toxicity was noted, reference to these observations will be omitted hereafter.

REPORT OF CASES

CASE 1.—*History.*—A. C., a man aged 33, was exposed on Nov. 12 and 18, 1944. Onset occurred on Nov. 23, 1944, with chills, fever, sweats, arthralgias, myalgias, anorexia, headache, mental dulness, photophobia and a painful swelling at the edge of the right thumb nail followed in two days by a tender swelling in the right axilla.

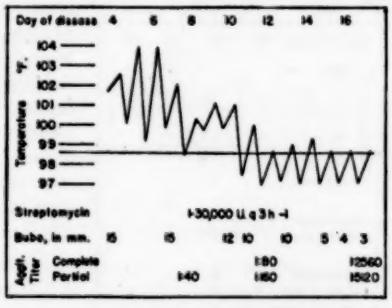

Fig. 1 (case 1).—Effect of streptomycin on the daily maximal and minimal temperatures and on the diameter of the accessible axillary bubo. Although the last recorded agglutinin titer is unusually high for the seventeenth day of disease, it is within the normal range and probably unrelated to the therapy.

The patient was admitted to the hospital on the fourth day of disease with persistence of initial complaints and symptoms. The significant physical findings were a temperature of 101.7 F., a nonulcerated papular paronychial lesion on the right thumb and a painful, tender bubo measuring 1.5 by 1 cm. in the right axilla. Pneumonia was not present by physical signs or by x-ray.

An intradermal test with 0.05 cc. of a formaldehyde killed bacterial suspension on the fourth day of disease, the test dose containing about 6,000 cells, gave a positive reaction forty-eight hours later. Serum agglutinin titers are shown in figure 1.

Therapy.—Streptomycin administration was begun on the eighth day of disease, 30,000 units being given every three hours intramuscularly for five days, a total of 1.2 million units.

Course During and After Therapy.—At the end of the first day the patient looked and felt improved; headache was almost gone, the bubo and primary lesion were less painful, bodily aches and pains were ameliorated; he was not sweating but was interested to know when he could get up. By the second day he had had the first good night's sleep, with but one sweat, and awoke with a clear head. The bubo was almost painless, scarcely tender to pressure and distinctly smaller. Its previously smooth, tense surface was soft and rugose. The positive skin test reaction remained unchanged. By the third day the bubo was painless and still shrinking. The entire area of the primary lesion was wrinkled. On this day, the eleventh of disease, he stated that he had "no complaints whatever." During the next day he was afebrile. The bubo continued to dwindle, and the incised papule showed primary healing without ulceration. Recovery ensued rapidly without interruptions. The primary lesion healed without ulceration, and the bubo shrank to barely palpable size. He regained strength and vigor, was

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The streptomycin hydrochloride was supplied by Merck & Co., Inc., Rahway, N. J.

From the Departments of Bacteriology and of Medicine, University of Cincinnati College of Medicine, and the Cincinnati General Hospital.

Dr. W. A. Altemeier furnished the opportunity to collaborate in the treatment of case 2, Drs. Altemeier and A. F. Rewwer of case 4, Dr. D A. Tucker Jr. of case 6 and Drs. R. L. Crawford and C. G. Reid of case 7.

1. Heilman, F. R.: Streptomycin in the Treatment of Experimental Tularemia, Proc. Staff Meet., Mayo Clin. **19**: 553 (Nov. 29) 1944.

out of bed on the sixteenth day, the eighth after onset of therapy, and left the hospital on the eighteenth day of disease, afebrile and asymptomatic except for slight weakness. He returned to half time work in ten days. After two weeks he resumed full time work. During the subsequent eleven months he has remained well.

The patient had thirteen days of fever, fifteen days in bed and a palpable bubo for sixteen days. His primary lesion, although incised, had healed within seventeen days without ulcerating. He was totally disabled for twenty-eight days, with partial disability extending to 1.4 months from onset.

Case 2.—*History.*—M. E. T., a man aged 40, was exposed on Nov. 10, 11 and 12, 1944. Onset occurred on November 15 with general malaise, anorexia and a "thorn" in the right thumb. Three days later he had severe chills, high fever, drenching sweats, a splitting headache, lethargy, mental depression, profound anorexia, cough, nausea and vomiting. This condition persisted unabated for fourteen days. Since then he has had no chills but persisting low fever, cough, daily sweats, dull headache, lethargy and profound weakness with a 17 pound (7.7 Kg.) loss in weight.

The patient was admitted with these residual complaints on the twenty-second day of disease. Examination revealed a temperature of 99 F., evidence of recent loss of weight, a papulovesicular exanthem over the back of the neck and the shoulders, a painful granulating ulcerated primary lesion about 9 mm. in diameter on the middle phalanx of the right first digit and two tender dermal lymphangitic nodules on the mesial surface of the right arm with reddened overlying skin, the larger measuring 1 by 0.5 cm., the smaller 0.4 cm. Pneumonia was not present by physical signs or by x-ray.

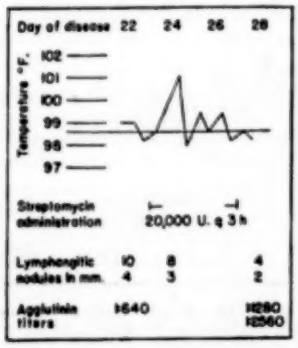

Fig. 2 (case 2). — Effect of streptomycin on the temperature curve and on the diameters of the dermal lymphangitic nodules. Fluctuations in fever curves to this extent are not uncommon at this stage of disease. Distinction between spontaneous fever and a possible pyrogenic effect of streptomycin on the twenty-fourth day could not be made.

Therapy. — Streptomycin administration was started on the twenty-third day of disease, 20,000 units being given every three hours intramuscularly for four days, a total of 640,000 units.

Course During and After Therapy. — Little change was noted during the first day other than loss of pain in the primary lesion. During the second day appetite returned, and the patient ate with relish for the first time since the onset of illness. The exanthem disappeared. The dermal nodules became smaller and less tender, and the overlying skin was bluish. By the third day he was hungry and ate well. Headache, lethargy and depression disappeared. The nodules continued to recede. A day later he was totally asymptomatic, felt vigorous and said he could go to work. He was discharged the next day, feeling competent to work, with barely palpable dermal nodules without coloration and a small epithelizing ulcer.

On the eighty-eighth day after discharge he returned with a large right subpectoral abscess. Incision yielded about 500 cc. of thick, odorless, greenish gray pus. Cultures and animal inoculations were unproductive.

This patient had weathered the severe initial phase before treatment was administered. The only valid objective evidence of therapeutic effect was the rapid recession of the lymphangitic nodules. His subjective improvement progressed more rapidly than is usual at this stage of disease, and we believe his convalescence was accelerated.

Case 3.—*History.*—C. S., a woman aged 53, was exposed on Dec. 15, 1944. Onset occurred on December 18 with chills, fever, generalized aching, headache, nausea, vomiting, pain in the right elbow and in the right axilla and painful papular sores on the right second and right fifth digits.

The patient was admitted on the second day of disease with a temperature of 103.3 F., which rose and varied between 104.9 and 105.1 F. for several hours; she was delirious, disoriented and in peripheral shock, with many blood pressure readings at or below a systolic of 80 mm. and a diastolic of 55 mm. of mercury. After slow recovery of pressures toward normal, nausea and vomiting persisted, and she continued to be profoundly weak and highly febrile, and she lapsed frequently into a semidelirious state until treatment was instituted. Additional significant physical findings of this short, slightly obese woman were exquisitely painful areas in the right axilla and the inner right elbow that prevented palpation of buboes, a 4 mm. paronychial papule on the right second digit and a smaller one on the dorsal surface of the middle phalanx of the right fifth digit (fig. 3). Pneumonia was not present. X-ray examination of the lung showed only increased bronchial shadows.

Fig. 3 (case 3).—Appearance of the primary lesions on the twelfth day of disease, one day before the scabs fell off leaving almost no residual traces of injury. The site of the small incision into the papule on the index finger, that healed by primary intention, is visible. Although a relatively trivial event in recovery, the healing of primary lesions without ulceration is significant of the efficacy and mode of action of streptomycin.

The results of serum agglutination tests are shown in figure 4. With the hope of demonstrating a bacteremia, 1.6 cc. of her blood was spread on the surfaces of nine blood glucose cystine agar plates and several slants, and 0.75 cc. was injected intraperitoneally into each of 2 mice, but all mediums remained sterile and both mice survived.

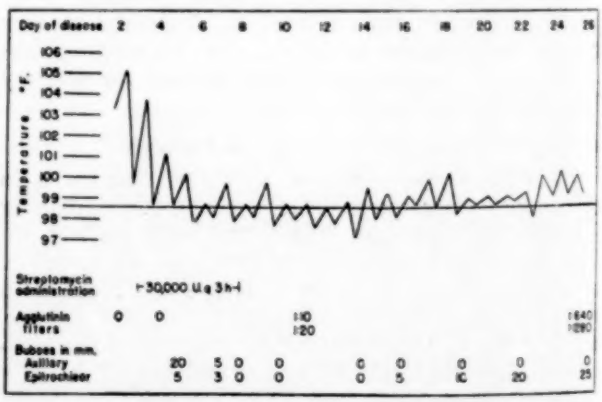

Fig. 4 (case 3).—Dramatic fall in temperature and recession of buboes in a desperately ill patient treated on the third day of disease. Reenlargement of a node and recurrence of low fever may indicate inadequate dosage.

Therapy.—Streptomycin treatment was instituted on the third day of disease, 30,000 units being given intramuscularly every three hours for a period of five days, a total of 1.2 million units.

Course During and After Therapy.—After sixteen hours she was mentally clear, the temperature had fallen more than 2 degrees, the severe malaise was considerably ameliorated, and there was less pain in the axilla and at the elbow but the nodes were still not palpable. By the second day the temperature had fallen to a maximum of 100.1 F. Regional pain was so slight that buboes were readily palpable. A node measuring 2 by 1.5 cm. was felt in the right axilla, and one about 4 mm. in diameter was found at the right epitrochlear region. Neither papule showed an increase in size, and neither appeared to be ulcerating. The patient was afebrile throughout the third day of treatment. Nausea and vomiting had disappeared; headache and bodily aches and pains were minimal. On the fourth day the primary lesions measured 3 by 2 mm. and 2 by 1 mm. respectively and showed evidence of healing at the peripheries without ulceration of the centers. The axillary bubo measured only 0.5 cm., and the epitrochlear node was impalpable. The patient asked for more food and stated that she had no complaints except profound fatigue. On the following day the axillary node was impalpable. There was no fever, and subjective improvement continued. Treatment was discontinued. She was up in a chair on the fourteenth day of disease, with strength and vigor returning rapidly, and with no sweating during the previous four nights. Both papules had healed without ulceration.

Plans to leave on the seventeenth day were postponed because of the recurrence of low fever, pain at the right elbow and reenlargement of the epitrochlear node. During the next nine days it continued to enlarge. The overlying skin was red, and the node was tender and slightly painful, but suppuration did not occur. After discharge on the twenty-sixth day of disease there was persistence of low fever until the thirty-seventh day. Since then she has remained afebrile, and the bubo gradually receded. Examination on the forty-ninth day showed a painless, nontender node, normal in size and consistency, in a patient who had completely recovered her health and weight loss. She resumed work two days later.

The dramatic fall in temperature, prompt amelioration of severe general symptoms with rapid recession of buboes and failure of primary lesions to ulcerate even though one had been incised are attributable only to streptomycin therapy. Permanent changes of these kinds do not occur spontaneously during the severe initial phase. The fall in temperature might have coincided with a spontaneous febrile remission, which often occurs at this time, but the failure of fever to rise subsequently to or near the initial level clearly removes it from this category. Fever was present for thirty-two days, but except for the first five days it was never above 100.2 F. The axillary bubo was palpable for eight days, the epitrochlear for 1.6 months. There were fourteen bedridden days, and a disability period of 1.7 months. Obese persons at this age, with severe initial symptoms including delirium and disorientation, are notably poor risks with bad prognoses. So far as we know there is no record of a primary lesion that failed to ulcerate in a surviving patient except for rare instances among heavily vaccinated laboratory workers.

CASE 4.—*History.*—L. G., a woman aged 36, diabetic for several years, was exposed on Nov. 23, 1944. Onset occurred on November 27 with fever, chills, cough, sore throat, weakness, sweats, bodily aches and pains, headache, sore on the tip of the right fourth digit and pain in the right axilla. The temperature ranged from 102 to 103 F. She became dyspneic and profoundly prostrated and was admitted on the sixth day of disease for better control of the infection and the diabetes.

The patient was well developed, pale, febrile, severely ill and dyspneic, with extensive herpes labialis. Fine rales were audible over both lung bases. There was an indolent ulcer on the right fourth digit about 5 mm. in diameter, visible and palpable lymphangitis of the forearm, and a tender, painful axillary bubo. Lung x-rays showed "exaggerated markings to both bases, indicating bronchial infection" but no pneumonia. The blood sugar was 237 mg. per hundred cubic centimeters.

The nature of the infection was not suspected at first. After sulfadiazine administration, 2 Gm. at once and 1 Gm. every four hours for four days, she was not improved, and the temperature was 1 degree higher. It continued to rise to 102 to 104 F. daily. The probability of tularemic infection was suggested on the fourteenth day of disease.

Therapy.—Streptomycin administration was started on the seventeenth day of disease, 30,000 units being given intramuscularly every three hours for five days, a total of 1.2 million units.

Course During and After Therapy.—Little improvement was noted during the first day, but the patient stated that she felt better. By the second day subjective and objective favorable changes were prominent. Headache and mental dulness had disappeared; she felt better, stronger, less prostrated and cheerful. Cough had disappeared, and the throat was less sore. Within two days the bubo had diminished from 3.5 by 2 cm. to 2.5 by 1.5 cm., and the primary lesion had become painless. She was afebrile throughout the third day of treatment and announced that she felt "perfectly well." Improvement continued during the fourth day, associated with beginning epithelization of the ulcer. She continued to gain in weight and vigor and it was difficult to keep her hospitalized. The bubo receded gradually. Fever disappeared on the forty-second day of disease. During the next six weeks the bubo receded to a diameter of about 5 mm., at which size it still remains, painless and not tender.

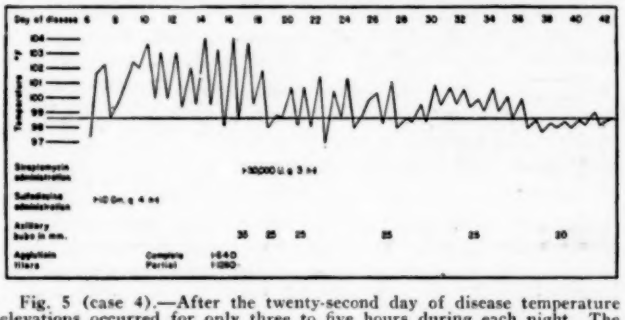

Fig. 5 (case 4).—After the twenty-second day of disease temperature elevations occurred for only three to five hours during each night. The patient was unaware of fever and was eager to go home. The curve also shows comparative effects of sulfadiazine and streptomycin.

Although the rapid transition from a state of illness to one of relative comfort within three days could scarcely have been a spontaneous change at this stage of disease in a patient with a bubo of this size, the concomitant effect on the temperature was less permanent. The maximal-minimal temperature readings shown in figure 4 do not reflect the progressive clinical improvement that occurred. The hospital chart showed that the temperature elevations that averaged about 101 F. for two weeks after treatment was given occurred chiefly during the nights, and for only three to five hours. There was little or no fever during the remainder of the days. The reasons for this unusual temperature curve are not entirely clear. There were thirty-five febrile days and twenty-eight days spent in bed. Palpable adenopathy persisted for 2.8 months.

CASE 5.—*History.*—M. C., a Negro woman aged 40, could not give a reliable chronologic account of exposure or of onset of illness. It is presumed that exposure was on Dec. 13, 1944 and that onset occurred on or about December 17 with chills, fever, sweats, nausea, vomiting, anorexia, severe malaise, headache, mental dulness, a sore on the lateral aspect of the tip of the felt fourth digit and pain in the left arm and in the left axilla. She remained at home for more than two weeks and was admitted on or about the seventeenth day of disease with the complaints unchanged, with a diagnosis of felon of the finger. The significant findings were temperature of 102.1 F., a ragged, necrotic ulcerated lesion on the terminal phalanx of the ring finger, a painful, tender, left axillary bubo that measured 5.5 by 4.5 cm., and normal lungs both by physical signs and by x-ray.

Therapy.—On the twentieth day of disease streptomycin administration was started, 30,000 units being given intramuscularly every three hours for five days, then 15,000 units intramuscularly every four hours for two days, a total of 1.38 million units.

Course During and After Therapy.—By the end of the first day the bubo had diminished to 4 by 3 cm. It was less painful and less tender. There was a decided amelioration of all symptoms. Before the end of the second day she was afebrile and remained so thereafter. Chills and sweats ceased abruptly, not to return. Disappearance of all general symptoms occurred before treatment was discontinued. By the fourth day the axillary bubo was resolvable into two discrete nodes. The smaller one receded rapidly to a 6 mm. diameter within a week; the larger was still 2 by 2 cm. when she left the hospital on the thirtieth day of disease. The latter node remained stationary for three weeks; then it enlarged, liquefied rapidly and ruptured spontaneously. The sinus tract healed in two weeks.

The change from a state of wretchedness to one of almost complete comfort was dramatically short, with abrupt and permanent disappearance of fever. Many patients have fever of the same or shorter duration, but commonly it does not disappear so abruptly, and especially in the presence of a liquefying bubo. There were twenty-two febrile days, twenty-six days in bed. The duration of adenopathy was 2.2 months.

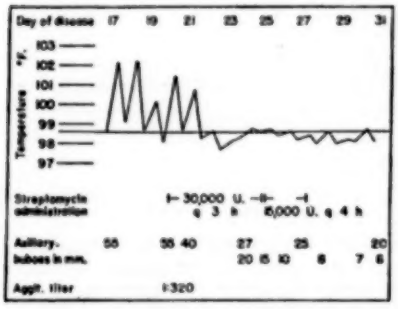

Fig. 6 (case 5).—Note the abrupt termination of fever before the end of the second day of therapy. Although an important change, it is less significant in relation to stage of disease than the fall shown in figure 4. The additional streptomycin over the usual dosage was given with the unrealized hope that it might prevent ultimate liquefaction of the larger node.

Case 6.—*History.*—M. P., a farmer aged 60, experienced multiple exposures during November and early December 1944. Onset occurred on December 7 with a severe chill, high fever and sweat; he ached all over. Severe symptoms lasted for four days, after which they continued in milder form associated with moderate to low fever. On the third day of disease primary lesions appeared on the left fifth digit, the right thumb and the dorsum of the right hand. Painful swellings appeared simultaneously in each axilla. Until admission the clinical course was characterized by malaise, weakness, loss of weight, persistent fever, multiple ulcerations on the hands and fingers, and progressively enlarging, painful buboes. Two dermal lymphangitic nodules developed on the right forearm.

The patient was admitted on the thirty-sixth day of disease with a temperature of 101.6 F. Significant findings were evident loss of weight, moderate secondary anemia, a painful swelling in the left axilla measuring 4 by 4 cm., an 8 mm. ulcer on the tip of the left fifth digit, an ulcerated paronychial lesion on the right thumb, a 14 mm. ulcer on the dorsum of the right hand and two regressing lymphangitic nodules on the dorsum of the right forearm, each about 3 mm. in diameter.

At the time streptomycin was instituted, the left axillary bubo was a warm, tender, painful mass at least 5 by 6 cm. in diameter, apparently composed of two nodes, each fluctuant and almost completely liquefied.

Serum obtained on the thirty-eighth day of disease agglutinated both Bacterium tularense and Brucella abortus completely in 1:1,280 dilution. Repetition on the sixty-first day showed both titers unchanged and a Proteus OX_{19} titer of 1:20, partial in 1:40 dilution. Hemoglobin varied between 10 and 10.5 Gm. (64 to 67 per cent Sahli), and red blood cells varied between 3.28 and 3.41 millions per cubic millimeter.

Therapy.—On the day after admission and for three days thereafter the patient received by vein 7.5 cc. of commercially prepared antitularense horse serum, a total of 30 cc. in ninety-six hours.

Streptomycin therapy was instituted on the fiftieth day of disease, 23,500 units being given intramuscularly every three hours for five days, a total of 940,000 units.

On the following day incision of the axillary abscess yielded about 40 cc. of pus. Six days later an incision was made to evacuate another abscess deeper in the axilla.

Course During and After Therapy.—During the ten days subsequent to serum administration, no significant subjective or objective changes were noted. By the end of the first day of streptomycin therapy there was slight but definite amelioration of all subjective symptoms but no other changes of note. After evacuation of the axillary abscesses there was rapid, progressive improvement that continued uneventfully to complete recovery. The uninformative temperature chart is omitted.

Since the chief cause of persisting illness was the suppurative adenitis, it is probable that incision and drainage of abscesses contributed most toward the recovery, even though definite subjective improvement had occurred before the first incision was made. Here again, as in case 2, little could be expected beyond an acceleration of convalescence, but it seemed that that little was achieved.

Case 7.—*History.*—J. M., a woman aged 26, was exposed on Nov. 24, 1944. Onset occurred on November 29 with chills, fever, sweats, cough, severe malaise and a painful sore beneath the edge of the nail of the left third digit. Small tender buboes appeared in the left epitrochlear and axillary regions on the second day. Symptoms and signs of pleurisy over the right lower lobe developed on the seventh day followed by clinical and x-ray evidences of a progressively developing pneumonia in that lobe. By the fourteenth day the lobe was consolidated. Remittent fever continued to reach daily levels of 103 F. The buboes measured 2 cm. and 2 by 3 cm.

Serum taken on the twelfth day agglutinated Bact. tularense in 1:80 dilution. Two weeks later the titer was complete in 1:1,280 dilution. An intradermal test with bacterial antigen gave a positive reaction on the eighteenth day.

Course After Treatment with Hyperimmune Goat Serum.—On the eighteenth day of disease she received by vein 60 cc. of hyperimmune goat antitularense serum prepared by inoculating animals with living virulent organisms. During the subsequent week the temperature fell gradually to normal. Early convalescence, though slow, progressed satisfactorily. Buboes were impalpable after the twenty-second day. Nineteen days after serum administration an x-ray showed resolution of the pneumonic area and she was permitted to go home. The summary at this stage showed that there had been twenty-five febrile days and twenty-eight days spent in bed, and an apparent duration of disease of 1.4 months.

After returning home the patient felt well except for severe headache. Continuation of low grade fever was soon noted. During the next month she experienced several distinct bouts of higher fever associated with general malaise, anorexia and loss of weight. On February 14, the seventy-eighth day after onset, continuous fever recurred, varying between 102 and 103 F. Two days later there was pain in the upper left abdominal quadrant and soon thereafter her abdomen began to swell. This continued for two weeks, at which time she was again hospitalized.

Examination showed that the patient was somewhat emaciated and dehydrated. She complained of generalized abdominal distention and pain in the upper left quadrant. A friction rub was heard over the splenic area on deep inspiration. The abdominal girth was commensurate with that of a full term pregnancy, and the cavity was obviously distended with fluid. The thorax was negative to physical examination and the lungs were clear by x-ray. Temperature maxima varied daily between 102 and 104 F.

An agglutination test showed a titer of 1:320. On repetition the titer rose gradually and became stabilized at 1:1,280. Abdominal paracentesis yielded a thick, cloudy, straw colored fluid which failed to initiate growth after cultivation in several

mediums. A sample injected intraperitoneally into a guinea pig caused its death about a week later. Sections of its liver, spleen and lungs revealed numerous focal necroses which Dr. Paul Kimmelstiel considered were compatible with the lesions of rodent tularemia.

Streptomycin Therapy.—On the one hundred and third day of disease streptomycin therapy was instituted. The dosage was 50,000 units intramuscularly every three hours for the first two days, followed by 30,000 units every three hours for the four succeeding days, a total of 1.76 million units.

Course During and After Streptomycin Administration.—After the fourth injection the patient was intensely nauseated, vomited and became extremely drowsy. Nausea and vomiting continued, and somnolence became so extreme that she could scarcely be aroused to take fluids or food. The temperature was in the 100 to 102 F. range, and the abdominal fluid level was lower. In the absence of any other signs of possible drug toxicity, treatment was continued without interruption. Nausea, drowsiness and a widely fluctuating temperature continued until the fourth day. Then the temperature began to fall, nausea became less, and the splenic friction rub, which had been heard rather consistently, disappeared not to return. The temperature reached normal on the sixth day and, except for one rise on the eighth day, remained normal thereafter.

Some fluid was still present in the abdominal cavity at the time the temperature reached the normal level. Another sample was obtained and inoculated intraperitoneally into a guinea pig. This animal survived.

Subsequent to the one hundred and tenth day of disease, the eighth day after onest of therapy, the patient was afebrile. She was hospitalized for an additional two weeks, during which her appetite returned, the lost weight was regained and the abdomen became perfectly flat without evidence of fluid. When seen three weeks later she appeared to be in perfect health and had resumed her customary activities.

This patient presented several unusual features. Subsequent to a fairly satisfactory recovery induced by hyperimmune serum therapy there occurred a relapse of serious proportions despite the fact that the most serious early lesion, the pneumonia, had resolved completely. Bactericidal properties have not been demonstrated for tularemia immune serums. Since the beneficial results of serum therapy are apparently due to a bacteriostatic effect, the patient probably experienced a sequence of events somewhat as follows: It is clear that the small lesions established early in the accessible lymph nodes, and the extensive lesion in the lung, were prevented from progressing by bacteriostatic action long enough to permit resolution by the usual processes of repair. Bacteria in some of the lesions established early in the spleen escaped the intensity or duration of bacteriostasis necessary to permit completion of a similar process, and with gradual release from inadequate local bacteriostasis there occurred progressively splenitis, perisplenitis, and peritonitis with infected exudate.

Since the duration of disease in all cases of tularemic peritonitis known to us has been long, ranging from ten months up to two and one-half years as reported for the case recorded by Kilbury and Fulmer,[2] in which distention due to peritoneal exudate persisted for more than three months, the rapid restoration of this patient to a completely normal state was a highly significant change. The temperature chart is unfortunately not available.

The dramatic, favorable response to streptomycin therapy was marred only by the appearance of intense nausea, vomiting and deep somnolence. Since these symptoms are frequently caused by the disease, somnolence a constant feature of its terminal phase when the density of bacteremia is demonstrably high, we regard them not as an expression of toxicity of the antibiotic but as manifestations of an acute intoxication caused by rapid absorption of bacterial products through a highly absorptive serous membrane consequent on rapid killing of numerous bacteria within a short time.

2. Kilbury, M. J., and Fulmer, S. C.: Tularemic Peritonitis: Report of Case Observed for Four Years, South. M. J. **24**: 856 (Oct.) 1931.

COMMENT

It is noteworthy that each of the first 6 patients experienced relief from the distressing general symptoms of headache, mental dulness, sense of prostration, arthralgias, myalgias, chills or chilly sensations and nausea before the end of the first day of therapy. This effect was a striking feature by the end of the second day, and it appeared even with very low, possibly suboptimal dosage. We infer that bacteriostasis, which must undoubtedly have occurred within the first twelve hours of therapy, is associated with failure of the bacteria to elaborate the diffusible substances that lead to the production of these symptoms. Failure of papular primary lesions to ulcerate, even after incision, seems also a result either of bacteriostasis or a regional bactericidal effect.

Streptomycin Dosage.—It is doubtless partly fortuitous that our trial dosage proved to be so effective. By hindsight we regard it as a minimal effective dosage in relation to the severity and duration of disease encountered. It is probable that we gave too little streptomycin, or for too short a period, to obtain the best possible results in several cases. We probably erred on both counts in relation to case 2, in which a doubtfully palpable lymph node was situated deep in the pectoral fold. The subpectoral abscess was caused by extension from this suppurating node, and it is possible that had more streptomycin been given over a longer period liquefaction might have been prevented. The same criticism might apply to the reenlargement of the epitrochlear node in case 3 and to the persistence of fever and the bubo in case 4. Although neither bubo suppurated, convalescence might have been materially shortened had our dosage been, for example, 50 or 60 thousand units every three hours for the first four days, followed by 30 to 50 thousand units every three hours for two or three additional days.

It is probable that administration by continuous subcutaneous drip, which seems to be tolerated better than a continuous intravenous drip, would have been more effective than intermittent intramuscular administration in securing high initial blood and tissue concentrations, the most important factors for successful therapy with all bacteriostatic and bactericidal agents.

We were unable to treat a patient with tularemic pneumonia, the commonest serious visceral lesion. We would expect a dosage of about ½ million units daily by continuous subcutaneous drip to induce extremely favorable results. If clinical evidences of septicemia were present—nonremittent high fever, continuous delirium and enlarging liver or spleen—the dosage must be larger, possibly not less than 2 to 4 million units per day. In view of the numerous bacteria within such patients, and with the experience of patient 7 in mind, we think that those who may guide the management of septicemic patients should anticipate symptoms of profound intoxication and be prepared to cope with them.

We were unable to determine streptomycin concentrations in blood or serum at the time these patients were treated. From later studies we infer that administration of 30,000 units every three hours maintained concentrations between 2 and 4 units per cubic centimeter of serum during the period of administration.

Relapse.—The frequency of relapse in tularemia is unknown. From available information we estimate it to be about 1 in each 700 to 800 cases. In this connection it is noted that the relapse following serum therapy in the seventh patient was the first to occur among 900 patients so treated. None occurred in the streptomycin treated patients up to eleven months after recoveries.

Comparison with Serum Therapy.—Comparative estimates of the effects of these two therapeutic agents were unavoidable. With due regard for the small size of the streptomycin series, one feature was outstanding: the uniformity of the clinical responses in character, degree, continuity and time of appearance. Although we have records of serum treated patients that compare favorably with any recorded here, we could not match them by selecting any seven case records at random. The responses to serum therapy have always shown a wide range of variability in character, degree, continuity of effect and time of appearance. This has been attributed chiefly to variability in the efficiency of individual defense mechanisms as they were aided by a bacteriostatic agent. The administration of a bactericidal agent that acts directly on bacteria and independently of the variable, individual defense mechanism possibly accounts for the observed uniformity of responses to streptomycin.

Effect of Therapy on Residual Immunity.—Recovery from tularemia confers an unusual degree of protection against external reinfection, often of lifelong duration. This resistance is associated with persistence of serum agglutinins, a fact which in itself implies continuous antibody formation. Although final proof by recovery of the causative agent is still lacking, many surmise that both the lasting protection and the persisting serum antibodies are caused by retention of living bacteria within the recovered patient, held in innocuous bacteriostatic equilibrium. The late recrudescences that occasionally occur, often subsequent to unusual physical effort or exposure but sometimes without traceable antecedent change, are attributable to disturbance of this equilibrium with consequent release of the long retained bacteria from bacteriostatic control. Effective treatment with either arsenicals or penicillin during the early primary stage of syphilis kills all treponemes and leaves patients susceptible thereafter to external reinfection. Must we anticipate a similar situation after early streptomycin therapy of tularemia? There is clinical evidence that treponemes are disseminated relatively slowly from the site of the primary lesion, whereas Bact. tularense spreads to regional lymph nodes very rapidly, apparently even during the incubation period. Hence before streptomycin therapy could be initiated, even if on the first day of disease, the probability is great that dissemination had occurred and that areas of potential antigenic stimulus were already established. Only in the event of a laboratory infection in which suppressive or prophylactic streptomycin therapy could be started immediately after infection would the therapy be apt to prevent antibody formation and to leave the patient susceptible to reinfection.

If persisting serum agglutinins are an index of maintained resistance they should indicate the immune status of patients who were treated with streptomycin. During the eighth month after onset serum was obtained from the 3 patients who received streptomycin therapy earliest in the course of disease. The highest serum dilutions that showed complete agglutination were compared with the same titers obtained during the acute phases. On the basis of this evidence there seems little likelihood that early streptomycin therapy has jeopardized the immune status of any of these patients.

Maximal and Residual Titers

The maximal complete agglutination serum titers observed during the acute phase of disease compared with those obtained eight months later are shown in relation to the days of disease on which streptomycin therapy was instituted.

Day of Disease on Which Streptomycin Therapy Was Instituted	Maximal Titer During Acute Phase	Residual Titer Eight Months After Onset of Disease
3	1:640	1:1,280
8	1:2,560	1:1,280
17	1:640	1:640

DICUMAROL IN ACUTE CORONARY THROMBOSIS

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The increasing incidence of coronary thrombosis has been dwelt on frequently in recent medical literature and indeed has at times reached the lay press. The ever present challenge of this disease to the medical therapist might best be brought home to the physician himself when he realizes that approximately one out of five members of his own profession is stricken fatally with coronary thrombosis and occlusion. Thus, recent statistics show that in 1944 this disease accounted for 18 per cent of the deaths of physicians in this country.[1]

Much has been written on the pathogenesis, diagnosis and therapy of coronary thrombosis. Certainly in more recent years the clinician has had a better knowledge of the pathogenesis. His alertness and ability today to make earlier diagnosis has automatically given more effective treatment. Treatment itself is unfortunately limited by lack of specific therapy. The patient is put to bed, strenuous efforts are made to relieve the pain and otherwise therapy is more or less symptomatic. In addition, constant and careful watch is kept for complications. Under such a regimen approximately 80 per cent of those suffering the first attack now recover. In the remaining 20 per cent sudden death may occur without warning either as a result of ventricular fibrillation, from rupture of the softened area of the ventricle or from complete heart block. However, the greater number of cases with fatal termination are from congestive failure and embolism.

Master, Dack and Jaffe [2] noted that congestive failure caused 33 per cent of the deaths among 500 cases of coronary thrombosis and it was associated with severe shock in 16.5 per cent of additional fatal cases. Hence death in one half of the cases was due to cardiac decompensation with or without shock. In reviewing the subject of embolic phenomena Blumer [3] states that 50 per

Mrs. Raymond C. Teubner, B.S., M.T., carried out the technical work. Electrocardiographic evaluations were made through the courtesy of Dr. T. Conrad Wolff.
This investigation has been made possible through a grant in aid by the Abbott Laboratories, North Chicago, Ill.
From the Departments of Medicine and Clinical Biochemistry, Mercy Hospital Division, University of Maryland School of Medicine.
1. Deaths of Physicians in 1944, editorial, J. A. M. A. **127**: 90 (Jan. 13) 1945.
2. Master, A. M.; Dack, S., and Jaffe, H. L.: Age, Sex and Hypertension in Myocardial Infarction Due to Coronary Occlusion, Arch. Int. Med. **64**: 767 (Oct.) 1939.
3. Blumer, G.: The Importance of Embolism as a Complication of Cardiac Infarction, Ann. Int. Med. **11**: 499 (Sept.) 1937.

cent of cases of myocardial infarction are accompanied by mural thrombi within the ventricles, and in approximately 14 per cent of cases clinical evidence of embolism is observed from this source. Levine [4] too has recently emphasized the importance of mural thrombi and subsequent arterial emboli. Master and his associates [2] stated that in patients under 50 the most common cause of death was arterial embolism. Falk [5] emphasized the fact that massive pulmonary embolism is responsible for a significant percentage of deaths following acute coronary occlusion but that the sources of the emboli are the veins of the pelvis or lower extremities. Such massive pulmonary embolism accounted for 6 of 60 deaths occurring in a series of 128 cases of acute coronary occlusion reported by Woods and Barnes [6] in 1941. Nay and Barnes [7] undertook the study of 100 consecutive cases of acute myocardial infarction encountered at the Mayo Clinic to establish the incidence of vascular complications during the immediate convalescent period. They found embolic or thrombotic complications in 37 of the 100 patients. In fact these complications were important contributing factors to the death of 12 patients. The vascular complications were subsequent myocardial infarction in 15, pulmonary embolism in 14, cerebral embolism or thrombosis in 8, thrombophlebitis in 7 and arterial occlusion in 4. There was a total of 48 complications in 37 patients.

In the face of such pertinent statistics regarding the frequency of thrombotic and embolic processes following coronary thrombosis the question of therapeutic prophylaxis arose. It became our purpose then to observe the effect of an anticoagulant with regard to reducing the incidence of such complications.

MATERIAL

We have critically reviewed all the cases of coronary occlusion with infarction seen in the medical services of Mercy Hospital in Baltimore during the past three years. No case is included in this paper which did not have a typical clinical history substantiated by laboratory findings and electrocardiographic tracings. Thus a few patients who probably had myocardial infarction but who died within the first few hours were excluded because they did not have adequate laboratory work or electrocardiograms to substantiate fully the clinical impression of coronary occlusion. We found 110 cases which fulfilled the necessary criteria. All received the generally accepted treatment for coronary thrombosis. Sixty patients had not received dicumarol and are used as the control group. In March 1943, for purposes of comparison, we began to administer dicumarol to a series of patients. This series has now reached a total of 50. The age and sex distribution in these two series closely approximate each other and afford a fair basis for comparison (table 2). In our control group of 60 patients the incidence of cardiac decompensation of at least moderate degree (grade 2, 3 or 4) was found to be 33 per cent. The incidence of clinical embolism in the same control series was 16 per cent. These figures for such complications are in accord with those of other investigators.[8]

4. Levine, S. A.: Clinical Heart Disease, ed. 3, Philadelphia, W. B. Saunders Company, 1945.

5. Falk, O. P. J.: The Causes and Prevention of Sudden Death in Coronary Disease, J. A. M. A. **119**: 1250-1252 (Aug. 15) 1942.

6. Woods, R. M., and Barnes, A. R.: Factors Influencing Immediate Mortality Rate Following Acute Coronary Occlusion, Proc. Staff Meet., Mayo Clin. **16**: 341-345 (May 28) 1941.

7. Nay, R. M., and Barnes, A. R.: Incidence of Embolic or Thrombotic Processes During the Immediate Convalescence from Acute Myocardial Infarction, Am. Heart J. **30**: 65-76 (July) 1945.

8. Master, Dack and Jaffe.[2] Blumer.[3] Nay and Barnes.[7]

RATIONALE

Since 1943 we have determined prothrombin clotting times on most of the patients who had coronary occlusion. The determinations have been done by the method of Quick,[9] using a modified thromboplastic reagent as described by Brambel.[10] Other types of thromboplastins did not yield the desired sensitivity or reproducibility. The importance of using standardized reagents has been recently emphasized.[11] Determinations were made in each instance on undiluted plasma and on 12.5 per cent plasma. Several investigators [12] have shown that slight variations of prothrombin activity can be better detected with diluted plasma. Normals had previously been established for whole plasma of 12 to 14 seconds and for diluted (12.5 per cent) plasma, 85 to 100 seconds. It was noted that 3 of every 4 cases of coronary thrombosis exhibited an increased prothrombin activity, i. e. increased clotting tendency. There were 21 patients

TABLE 1.—*Incidence of Clinical Embolism*

Source	Number of Cases	Number with Embolism	Outcome
Master et al.[2]	500	29	6% fatal
Woods and Barnes [6]	60	6	10% fatal
Blumer [3]	945	132	14% fatal and nonfatal
Nay and Barnes [7]	100	18	18% fatal and nonfatal
Present series	60 without dicumarol	10	10% fatal (10%), nonfatal (6%)
Present series	50 with dicumarol	1	2% nonfatal

TABLE 2.—*Age Distribution*

	30-39	40-49	50-59	60-69	70 or Over	Total
Number of cases						
Dicumarolized	4	9	15	14	8	50
Nondicumarolized	3	7	18	25	7	60
Sex: male						
Dicumarolized	4	10	12	10	5	41
Nondicumarolized	1	4	16	18	3	42
Sex: female						
Dicumarolized	1	0	2	3	3	9
Nondicumarolized	1	2	3	8	4	18
Mortality						
Dicumarolized	0	0	0	2	0	2
Nondicumarolized	0	0	4	8	1	13
Clinical embolism						
Dicumarolized	0	0	1	0	0	1
Nondicumarolized	0	0	6	4	0	10

Average age of dicumarolized patients 57 years.
Average age of nondicumarolized patients 59 years.

with coronary thrombosis whose prothrombin times were within normal range or above normal. Cephalin-cholesterol flocculation tests were made in 13 of the 21 cases and 10 were positive, suggesting hepatic damage. Since there is considerable evidence to indicate that plasma prothrombin concentration is intimately related to the liver and its normal function, and where there is hepatic damage the plasma prothrombin concentration is lowered, one would expect to find increased

9. Quick, A. J.: The Nature of the Bleeding in Jaundice, J. A. M. A. **110**: 1658 (May 14) 1938.

10. Brambel, Charles E.: Thromboplastic Reagent: Development of a More Suitable Preparation for Measuring Accelerated Clotting Tendency and for Use Following Administration of Dicoumarin (3,3'-Methylene-Bis 4-Hydroxycoumarin), Arch. Surg. **50**: 137-147 (March) 1945.

11. Hurn, M.; Barker, N. W., and Magath, T. B.: The Determination of Prothrombin Time Following Administration of Dicumarol, 3,3'-Methylene-Bis (4-Hydroxycoumarin), with Special Reference to Thromboplastin, J. Lab. & Clin. Med. **30**: 432 (May) 1945. Brambel.[10]

12. Campbell, H. A.; Smith, W. K.; Roberts, W. L., and Link, K. P.: Studies on the Hemorrhagic Sweet Clover Disease: II. The Bioassay of Hemorrhagic Concentrates by Following the Prothrombin Level in the Plasma of Rabbit Blood, J. Biol. Chem. **138**: 1 (March) 1941. Shapiro, S.: Hyperprothrombinemia, a Premonitory Sign of Thromboembolization, Exper. Med. & Surg. **2**: 103 (May) 1944. Brambel.[10]

prothrombin clotting times in these cases.[13] In the early phase of this study the need for repeated checks of plasma prothrombin time on patients with initial normal values (hepatic damage?) was not realized. We now know that such patients can later show decreased prothrombin times. In fact, in 2 nondicumarolized patients of this type embolic processes did occur. Additional evidence in favor of the fact that patients with coronary thrombosis have a disturbance in their coagulation system and tendency toward clotting is obtained from the work of de Takats,[14] who showed that these patients exhibited increased resistance to the action of heparin.

Of the 67 cases showing accelerated prothrombin clotting times, results on whole plasma varied from 11 to 14 seconds and on diluted (12.5 per cent) plasma from 47 to 75 seconds. It is our opinion that the increased clotting tendency is attendant with the vascular occlusion rather than the cause of it, because at times it does not make its appearance until the second or third day. Nevertheless the equilibrium of the coagulation elements of the blood has shifted to a state favorable to clotting, and this condition favors extension of the thrombus and the formation of mural thrombi within the ventricles of the heart.

Having repeatedly observed an increased clotting tendency to be present in coronary thrombosis, and aware of the frequency and danger of emboli, it occurred to us that the use of an anticoagulant might be efficacious in the prevention of such complications in patients suffering from coronary vascular occlusion. During the last year Levine [4] has suggested a similar approach to the problem. He states that he has used anticoagulants in an effort to prevent formation of thrombi but that "the experience is too limited to permit any final conclusions." Working with animals, Solandt and Best [15] in 1938 furnished evidence that anticoagulants may be of benefit in experimental coronary thrombosis. These investigators found that they could gradually occlude a coronary artery by thrombus formation and that this thrombus and the resulting cardiac infarction may be prevented by administration of adequate amounts of an anticoagulant (heparin). Dale and Jacques,[16] also working with animals, showed that dicumarol hindered and, in a fair percentage of cases, prevented the formation of extravascular and intravascular thrombi. Its effectiveness paralleled the reduction in plasma prothrombin activity.

TABLE 3.—*Dicumarolized versus Nondicumarolized Patients*

	Dicumarolized		Nondicumarolized	
	Number	Per Cent	Number	Per Cent
Number of patients	50	....	60	....
Deaths	2	4	13	20
Clinical embolism	1	2	10	16.6
Number of patients given digitalis	8	....	17	....
Deaths of patients who were digitalized	1	12.5	9	53

Premonitory symptoms of coronary occlusion certainly are not often recognizable, and hence the initial process cannot be prevented. However, administration of adequate amounts of an anticoagulant may prevent extension of the thrombus and reduces chances of future formation of mural thrombi or venous thromboses in the lower portion of the body. For economical reasons and because of the ease of administration, dicumarol was selected as the anticoagulant of choice. While heparin institutes immediate effect, its administration raises practical difficulties. Moreover, vascular complications in our experience and in the reports of others [17] seldom occur before the fourth day. It seems that dicumarolization can be established before this danger period is present.

Accordingly, considering the mode of administration safe and to evaluate its action, dicumarol was administered to 50 patients with coronary occlusion. The ones selected were those in whom there was a definite clotting tendency judged by prothrombin time determination of diluted plasma. No other criteria were used in selecting the patients. In most instances the drug was started immediately after the initial prothrombin determination, and the effort was made to maintain the patient's prothrombin activity between 35 and 50 per cent of normal. The drug was continued during the hospital course, which in the average case was at least forty-two days. This carries the patient well beyond the period of greatest danger as regards embolic phenomena.[17] The patients treated received an average of 3,400 mg. of dicumarol during the course of administration.

TOXIC EFFECTS

During the two and one half year period in which we have administered dicumarol to patients with coronary occlusion we have observed very few toxic effects of the drug. The only immediate side effects have been a mild diarrhea, which is easily controlled, and occasional nausea or headache. Hypoprothrombinemia and consequent hemorrhage, should it occur, can be controlled by the intravenous injection of 37.5 mg. of menadione bisulfite.[18] This corresponds to Hykinone 72 mg. Contrary to the reports of a fairly substantial percentage of hemorrhagic incidents in some clinics,[19] we have been more fortunate in this respect. Of the 50 patients to whom dicumarol was administered, microscopic hematuria was noted in 3. No cases of frank hemorrhage and no deaths ascribable to dicumarol occurred in this series.

Several investigators [20] have shown that dicumarol does not disturb the formed elements of the blood, nor does it affect the capillary fragility and clot retraction. The blood coagulation time is altered only after prothrombin activity is reduced beyond 50 per cent of normal. Unfortunately, the erythrocyte sedimentation rate is increased by the drug to such an extent that it no longer serves as an index of healing of the damaged myocardium. However, in our opinion this disadvantage is outweighed if sufficient benefit from anticoagulant therapy can be demonstrated. Dependence on the

13. Smith, H. P.; Warner, E. D., and Brinkhous, K. M.: Prothrombin Deficiency and Bleeding Tendency in Liver Injury (Chloroform Intoxication), J. Exper. Med. **66**: 801, 1937. Quick, A. J.: The Hemorrhagic Diseases and the Physiology of Hemostasis, Springfield, Ill., Charles C Thomas, Publisher, 1942.

14. de Takats, G.: Heparin Tolerance, a Test of the Clotting Mechanism, Surg., Gynec. & Obst. **77**: 31 (July) 1943.

15. Solandt, D. U., and Best, C. H.: Heparin and Coronary Thrombosis in Experimental Animals, Lancet **2**: 130, 1938.

16. Dale, U. D., and Jacques, L. B.: The Prevention of Experimental Thrombosis by Dicoumarin, Canad. M. A. J. **46**: 546, 1942.

17. Blumer.[3] Nay and Barnes.[7]

18. Cromer, H. E., and Barker, N. W.: The Effect of Large Doses of Menadione Bisulfite (Synthetic Vitamin K) on Excessive Hypoprothrombinemia Induced by Dicumarol, Proc. Staff Meet., Mayo Clin. **19**: 217, 1944.

19. DeBakey, M.: Dicoumarin and Prophylactic Anticoagulants in Intravascular Thrombosis, Surgery **13**: 456, 1943. Evans, J. A.: Dicumarol Therapy in Thrombotic Emergencies, New England J. Med. **230**: 131, 1944. Cahan, A.: Hemorrhage and Purpura Caused by Dicoumarin, ibid. **228**: 820, 1943.

20. Allen, E. V.; Barker, N. W., and Waugh, J. M.: A Preparation from Spoiled Sweet Clover (3,3'-Methylene-Bis-(4-Hydroxycoumarin) Which Prolongs Coagulation and Prothrombin Time of the Blood: A Clinical Study, J. A. M. A. **120**: 1009 (Nov. 28) 1942. Bingham, J. B.; Meyer, O. O., and Pohle, F. J.: Studies on the Hemorrhagic Agent 3,3'-Methylene-Bis (4-Hydroxycoumarin): I. Its Effect on the Prothrombin and Coagulation Time of the Blood of Dogs and Humans, Am. J. M. Sc. **202**: 563 (Oct.) 1941. Evans.[19]

sedimentation rate as a guide for allowing coronary patients out of bed has already been somewhat altered by the recent trend [21] to make ambulant all cardiac, including coronary, cases sooner than was once deemed wise.

With regard to so-called delayed toxic reactions, we can report that none have been noted. We have carried several patients on this anticoagulant continuously for over a year without noting any ill effects. One patient has been given the drug regularly for a period of two years with the idea in mind that a recurrence of thrombosis might be prevented. Putnam [22] in New York has carried cases of multiple sclerosis on regular doses of dicumarol over a period of three years.

DOSAGE

We have in our clinic no standard dosage scale. Following the initial prothrombin time determination, the first dose is usually 300 mg. The subsequent dose is estimated by the patient's response to the previous dose. In this manner hyperreactors can be detected before the cumulative effect of several doses is manifest. Determinations have been deemed necessary only every other day because the maximum effect of any given dosage is obtained thirty-six to forty-eight hours after it is given. The prothrombin clotting time of diluted plasma (12.5 per cent) is a more sensitive indicator of changes taking place as the clotting mechanism is altered by the drug. Should the clotting time for 12.5 per cent plasma reach 400 seconds, this is interpreted as a caution signal and future doses are governed accordingly. In a number of selected cases, after it has been satisfactorily demonstrated that the patient is not a hyperreactor and his response can be fairly well predicted, the patient has been continued on dicumarol after discharge from the hospital, returning to the clinic twice a week for prothrombin determinations and succeeding doses. This procedure is not generally recommended and, indeed, is not without hazard, unless complete cooperation of the patient, his physician and the laboratory is secured.

No patient should be given dicumarol unless adequate laboratory facilities are available to check the prothrombin clotting time with appropriately standardized reagents. Experience and good judgment are essential in estimating dosage on basis of response of the coagulation system to the drug.

CONTRAINDICATIONS

No patients should be given dicumarol who have renal disease, evident hepatic disease or a blood dyscrasia with hemorrhagic tendencies. Patients with definite hypertension must be carefully evaluated, and special care taken with dosage. Due attention must be given to the fact that salicylates [23] and quinine [24] exert a dicumarol-like effect on prothrombin activity. A decrease in plasma prothrombin level has been observed in some patients receiving sulfonamides.[25] Although this may be interpreted as a manifestation of toxicity of the sulfonamide and is not to be expected in every patient, it is well worth noting. If it becomes necessary to administer one of these preparations concomitantly with dicumarol, special caution is advised to assure control over the cumulative action.

RESULTS

Of the 60 patients treated in the routine manner for coronary occlusion and not receiving dicumarol, 13 died. Six of these 13 died from clinical embolism, 5 from cardiac decompensation and 2 from sudden unexplained cause, probably ventricular fibrillation. In the group of 50 patients who were given dicumarol, 2 died. One of these had received only two doses of the drug totaling 300 mg. This patient died on the fourth hospital day from renal complications. The last blood urea determination was 138 mg. per hundred cubic centimeters. In the light of present day knowledge this patient would not be considered a candidate for dicumarol therapy because of evident renal dysfunction. The second died of myocardial failure during an attack of paroxysmal ventricular tachycardia on the seventeenth hospital day.

In the group of patients who were not given dicumarol there were 10 with clinical embolism. There was 1 case of peripheral arterial occlusion; the remainder were pulmonary or cerebral. Six of the 10 cases terminated fatally. The incidence here was 16 per cent, which corresponds fairly closely with the incidence of 14 per cent reported by Blumer.[3] Of the 50 patients receiving dicumarol, only 1 had any clinical evidence of embolism. It is to be noted that in this case the administration of dicumarol was unduly delayed until the eighth hospital day and dicumarolization had not been established when a presumptive cerebral embolism took place. This particular patient, a white man aged 56, entered the hospital four hours after the onset of substernal pain which later was demonstrated to be due to a posterior myocardial infarction. The prothrombin clotting time on the day of admission was found to be 15 seconds for undiluted and 80 seconds for diluted (12.5 per cent) plasma. Unfortunately, the determination was not made again for the next seven days. We have frequently observed a normal value on the day of the attack but find the very next day that the prothrombin clotting time of diluted plasma is decreased. On the patient's eighth day in the hospital a determination gave the value of 14 seconds on undiluted and 67 seconds on diluted (12.5 per cent) plasma. Three hundred mg. of dicumarol was given that afternoon. Twenty-four hours later the patient had twitching of the left hand followed by weakness of the extremity. The next morning value for undiluted plasma was the same and for diluted (12.5 per cent) plasma was 72 seconds. Suspecting that an embolic process had occurred, we again administered 300 mg. of dicumarol. From this point on plasma clotting times showed that dicumarolization had been effected. On the tenth hospital day there was a generalized convulsion followed by a transient left hemiparesis. The blood pressure prior to the convulsion was 80 systolic and 58 diastolic. After this second episode the patient had an uneventful course. He later became ambulatory and left the hospital with little residue from the paralysis. Although the patient was undoubtedly dicumarolized at the time of the second presumptive embolic phenomenon, it would seem to us that the delay in the intital administration of the drug might well have favored the building up of a sizable intramural thrombus.

21. Harrison, T. R.: Abuse of Rest as a Therapeutic Measure for Patients with Cardiovascular Disease, J. A. M. A. **125**: 1075 (Aug. 19) 1944. Levine, S. A.: Some Harmful Effects of Recumbency in the Treatment of Heart Disease, J. A. M. A. **126**: 80 (Sept. 9) 1944.

22. Putnam, T. J.: Personal communication to the authors.

23. Shapiro, S.: Studies on Prothrombin: VI. The Effect of Synthetic Vitamin K on the Prothrombinopenia Induced by Salicylate in Man, J. A. M. A. **125**: 546 (June 24) 1944.

24. Pirk, L. A., and Engelberg, R.: Hypoprothrombinemic Action of Quinine Sulfate, J. A. M. A. **128**: 1093 (Aug. 11) 1945.

25. Kapnik, I.; Stewart, J. D., and Lyons, C.: Plasma Prothrombin and Liver Function During Sulfonamide Therapy, New England J. Med. **227**: 944 (Dec. 17) 1942.

Among the 60 cases studied in which dicumarol was not given routinely and in which the incidence of embolism was significant, 1 is worthy of particular comment:

REPORT OF CASE

A white man aged 54 was admitted to one of the private services because of the complaint of a sudden sharp pain down his left arm, followed by a profuse sweat and generalized weakness. He was known to have had diabetes for some five years and was also known to have a moderate hypertension averaging 180 systolic and 100 diastolic. On admission, which was four days after the onset of pain, an electrocardiographic tracing and other laboratory data showed evidence of a posterior myocardial infarction. Shortly after admission his plasma prothrombin time was 14 seconds for undiluted and 57 seconds for 12.5 per cent plasma. No dicumarol was given and no further prothrombin clotting time determinations were obtained for five days.

The patient was quite comfortable for the first four days. On the fifth hospital day he complained of pain in his left foot. It was noted that the toes were slightly discolored and that the foot was cold. Papaverine ½ grain (0.032 Gm.) was given intravenously every four hours. The discoloration increased, however, and in several days a line of demarcation was evident just below the knee. On the fourth day after the first signs and symptoms of embolism had been noted (the ninth hospital day) dicumarol therapy was started. There was no change noted in the limb except for the presence of dry gangrene from toes to knee. On the twelfth day after occurrence of the embolism, while dicumarolization was now considered at a satisfactory and safe level with respect to prevention of further embolism, it was deemed wise to lower this level in the face of a major operation. Accordingly, early on the day of operation the patient was given 37.5 mg. of menadione bisulfite, which resulted in an increase in plasma prothrombin activity from 35 to 65 per cent in eight hours. Anesthesia was initiated with sodium pentothal and continued with ether. No undue bleeding occurred during the midthigh guillotine type amputation, and the patient withstood the procedure well. Dicumarol was continued postoperatively. The stump remained healthy and after ten weeks there have been no further complications.

COMMENT

This is a case in which an embolism of serious nature occurred nine days after the onset of a coronary occlusion. We can only speculate what course the case might have taken had dicumarol been started on admission. The ability of vitamin K derivatives to control the dicumarol level sufficiently to permit major surgery without fear of undue hemorrage is demonstrated. We have now been able to observe the effect of dicumarolization on over 1,800 miscellaneous cases in this clinic and have found the need for vitamin K therapy in comparatively few. In no case when a vitamin K derivative was given in adequate dose (Hykinone 72 mg.) was there failure to respond. This observation is in accordance with the work of others.[18]

In the group of 60 patients who did not receive dicumarol there were 17 with congestive failure who were given digitalis. Of these 17 patients 9 (53 per cent) died, most of them as a result of embolism. In the group of patients receiving dicumarol 8 were given digitalis for congestive failure; 1 of these (12.5 per cent) died. This death has already been mentioned as due to renal complications.

The danger of digitalis preparations in coronary thrombosis has recently been stressed by Askey and Neurath.[26] They reported that digitalis given to 32 patients having myocardial infarction complicated by auricular fibrillation and congestive failure proved to be more harmful than beneficial. Thirty-one of these 32 patients died, 13 of them from arterial emboli. They found that the administration of digitalis did not materially increase the incidence of sudden death from ventricular fibrillation or of rupture of the heart but did significantly increase the incidence of embolism. These authors concluded that digitalis was contraindicated in myocardial infarction. In a group of 100 patients with myocardial infarction studied by Nay and Barnes,[7] 12 were given digitalis. Two thirds of the cases were complicated by embolism. de Takats[27] and Massie and his associates[28] each have shown that digitalis preparations increased the coagulability of the blood as measured by the heparin tolerance and the clotting time. Despite the inability of certain observers[29] to duplicate this effect of digitalis in their cases, we have been able in our clinic to demonstrate repeatedly a decreased prothrombin clotting time on administration of digitalis. It is emphasized that such decrease was noted only in the more sensitive diluted plasma determination. In view of this action of digitalis and the knowledge that confinement to bed, whatever its cause, tends to favor thrombosis,[30] we find it difficult to disregard the need for the action of an anticoagulant. The results obtained in the small group of 8 patients with myocardial infarction plus congestive failure in which digitalis was used without evidence of embolism suggest that dicumarol is capable of opposing the thrombogenic property of digitalis and reducing the incidence of embolism. Consequently it is felt that when congestive failure supervenes in myocardial infarction and the patient is receiving dicumarol, digitalis may be given without fear of enhancing the possibility of thrombus formation. Other drugs widely used in the treatment of coronary vascular disease, such as theobromine and theophylline, have been shown experimentally to possess the same ability as digitalis to increase the plasma prothrombin activity.[31] Here again dicumarol administration may serve to counteract such undesirable action.

Repeated electrocardiograms were made on the 50 dicumarolized patients. We were not impressed by a quicker return toward normal in these tracings than was noted in the patients not receiving dicumarol. There have not been enough patients receiving the drug for long periods of time to suggest that the incidence of recurrence may be reduced.

SUMMARY

One hundred and ten cases of coronary thrombosis with myocardial infarction have been studied. Sixty patients received the accepted treatment for coronary thrombosis. Fifty received the usual treatment plus dicumarol sufficient to maintain their plasma prothrombin activity at 35 to 50 per cent of normal. The incidence of clinical embolism was 16 per cent in the nondicumarolized group and 2 per cent in the dicumarolized group. The mortality rate in the nondicumarolized group was 20 per cent and in the dicumarolized group was 4 per cent.

26. Askey, J. M., and Neurath, O.: Is Digitalis Indicated in Myocardial Infarction? J. A. M. A. **128**: 1016 (Aug. 4) 1945.

27. de Takats, D.; Trump, R. A., and Gilbert, N. C.: The Effect of Digitalis on the Clotting Mechanism, J. A. M. A. **125**: 840 (July 22) 1944.

28. Massie, E.; Stillerman, H. S.; Wright, C. S., and Minnich, V.: Effect of Administration of Digitalis on Coagulability of Human Blood, Arch. Int. Med. **74**: 172 (Sept.) 1944.

29. Sokoloff, L., and Ferrer, M. I.: Effect of Digitalization on the Coagulation Time in Man, Proc. Soc. Exper. Biol. & Med. **59**: 309 (June) 1945. Moses, C.: The Effect of Digitalis, Epinephrine and Surgery on the Response to Heparin, J. Lab. & Clin. Med. **30**: 603, 1945.

30. Homans, J.: Diseases of the Veins, New England J. Med. **231**: 51 (July) 1944.

31. Link, K. P.: The Anticoagulant from Spoiled Sweet Clover Hay, Harvey Lectures **39**: 162, 1943-1944.

We have not been impressed by a quicker return of the electrocardiographic tracing toward normal in the dicumarolized patients compared to those not receiving the drug.

CONCLUSIONS

1. We have observed an increased clotting tendency in most of our cases of acute coronary thrombosis. This is manifested by a decrease in the prothrombin clotting time of diluted (12.5 per cent) plasma.

2. Dicumarol can be safely administered to patients with coronary thrombosis to disrupt this increased clotting tendency.

3. The incidence of embolism as a complication of coronary thrombosis has been significantly reduced in this series of cases by maintaining the prothrombin activity between 35 and 50 per cent of normal during the period of active treatment and early convalescence —a period of six weeks.

4. Digitalization for congestive failure in coronary thrombosis increases the incidence of thromboembolic complications. This hazard may be nullified by the dicumarolization of such patients.

5. Few toxic reactions have been noted in this series. The drug can be administered, if desired, for an indefinite period without ill effects.

6. A comparison of 50 dicumarolized patients with 60 nondicumarolized patients reveals a reduction of embolic phenomena to one eighth and mortality rate to one fifth in the former. Such reduction appears sufficiently significant to warrant further clinical evaluation of this anticoagulant.

1127 North Calvert Street, Baltimore 2.

Special Article

NEW OPPORTUNITIES FOR PHYSICIANS IN THE VETERANS ADMINISTRATION

MAJOR GENERAL PAUL R. HAWLEY
Chief Medical Director, U. S. Veterans Administration
United States Army

With the demobilization of our armed forces approximately 15 million more Americans will become eligible for the medical care offered by the Veterans Administration. When the 15 million veterans in the process of demobilization are added to the 4 million veterans of previous wars, it becomes evident that the medical task of the Veterans Administration is both a challenge and an opportunity. It is a challenge to the nation to provide efficient and advanced medical care to those who have given so much for their fellowmen, and it is an opportunity for the physicians of our country to become part of a medical organization which offers unparalleled opportunities for satisfying medical practice and fruitful clinical investigation.

A public law recently passed by the Congress and approved by the President provides for increased opportunities for physicians in the newly created Department of Medicine and Surgery of the Veterans Administration. The law provides for a new salary scale commensurate with training and experience. In recognition of the value of the specialized training and experience of those certified by the American specialty boards, the law provides for a 25 per cent increase in base pay over those given in the accompanying table.

Physicians in the service will be encouraged to train for certification in the specialty of their choice. In the case of physicians already certified as specialists, original appointments will be made in the full grade or higher. While promotions to positions of higher grade are to be based on merit alone, regular salary increases within grade are provided for as shown in the table. Whenever possible, appointments in specialties and to hospitals in particular geographic areas will be made in accordance with the desires of the applicant.

Rates of Pay

Grade	Pay per Annum *	Qualified to Be
Chief	$8,750-$9,800	Clinical director or chief of service in large hospital; a teacher
Senior	$7,175-$8,225	Chief of service in medium sized hospital or chief of section in large hospital; a teacher
Intermediate	$6,230-$7,070	Chief of service in small hospital or chief of section in medium sized hospital; a teacher
Full	$5,180-$6,020	Assistant to chief of service or section
Associate	$4,300-$5,180	Senior ward officer
Junior	$3,640-$4,300	Junior ward officer

* Pay increased with length of service within these limits.

The magnitude of operations of the Department of Medicine and Surgery, operating as it does ninety-eight hospitals containing 85,000 beds, offers an unusual opportunity for clinical practice and investigation. The opportunity to practice medicine untrammeled by considerations of the ability of the patient to pay for expensive laboratory and x-ray studies is one which many physicians will find particularly satisfying. The large number of patients to be cared for and the unequaled facilities for continuous follow-up studies possessed by the Veterans Administration should make the service particularly attractive to those interested in clinical research. Recognizing that practice deteriorates when theory languishes, encouragement will be given to those capable of and interested in independent investigation.

In order to provide the most advanced and efficient care for its patients, arrangements are being made for affiliation with medical schools and medical centers by those hospitals near such institutions, and wherever possible new hospitals will be built in close proximity to such centers. The daily association with recognized authorities in medicine cannot but be stimulating to the physician and will give him professional associations of lasting value. As soon as certain hospitals are certified by the appropriate boards, residencies for recent graduates will be offered. For those interested in teaching, this plan will provide a pleasant opportunity for the instruction and guidance of young men embarking on a medical career. Since the practice of good medicine must be a continuing educational process, arrangements will be made for physicians to attend courses of study in Army, Navy, Public Health Service, Veterans Administration or civilian hospitals at the expense of the government. In order that its physicians may remain in the advancing front of medicine, arrangements for attendance at medical meetings as part of their official duties will be made.

It is evident that the reorganization of the medical services of the Veterans Administration imposes many problems, but it is at the same time an opportunity which I feel must not be allowed to escape. It is an opportunity to mold an organization to meet our new needs with the same determination and resourcefulness which physicians have always applied in the practice of their profession. It is my determination that the service shall at all times be sensitive to the ever advanc-

26. Askey, J. M., and Neurath, O.: Is Digitalis Indicated in Myocardial Infarction? J. A. M. A. **128**: 1016 (Aug. 4) 1945.

31. Link, K. P.: The Anticoagulant from Spoiled Sweet Clover Hay, Harvey Lectures **39**: 162, 1943-1944.

ing boundaries of medical knowledge and that it shall approach its problems in the spirit of the scientist. Such a working approach, I believe, will make for efficient medical care for patients and satisfying professional practice for physicians. I am convinced that the two are synonymous.

It is natural that physicians are interested in the attendant circumstances of their employment, and an organization conscious of the intimate relation between efficient work and the physical and mental well being of those who make up its very structure can be no less so. It is believed that the salaries already mentioned are equal to and in many cases higher than those which can be earned in civilian practice, particularly when it is realized that they are net and require no deductions for office rental, equipment, drugs and clerical or nursing help. The retirement provisions are those of the federal Civil Service and are based on a 5 per cent deduction from salary. Leaves for vacation and illness are the same as for all Civil Service employees. When physicians are transferred from one hospital to another, the expense of moving dependents and household goods is borne by the government.

The basic requirements for appointment as a physician in the Department of Medicine and Surgery are few. The physician must be a citizen of the United States, a graduate of a school of medicine approved by the Administrator of Veterans Affairs and must have completed an internship satisfactory to the Veterans Administration. He must hold a license to practice his profession in a state or territory of the United States or in the District of Columbia. He must meet the physical standards required by the department or, in the case of those recently separated from the armed forces, must present a copy of the final type physical examination of the Army or Navy completed within ninety days of the date of his application.

An outline of the procedure to be followed and the forms necessary for application may be secured by writing to or appearing in person at any office of the Veterans Administration. Appointments to the junior and associate grades will be made by veterans' hospitals or local offices subject to approval of the central office. Appointments in higher grades will be made by the Chief Medical Director with the advice of special consultant boards. Specialists certified by a board will not be offered an appointment at less than full grade. Applications and supporting documents for such higher grade appointments should be sent by air mail to the Chief Medical Director, Veterans Administration, Washington 25, D. C. Applicants will then be notified of the grade of the appointments offered and of their hospital assignments.

Severe Anxiety States.—Severe anxiety states produce an intensely striking, unforgettable picture. Terror stricken, mute and tremulous, these patients closely resemble those suffering from an acute psychosis in a state of panic. In fact, such patients frequently return from the front with the erroneous diagnosis of schizophrenia on their emergency medical tags. There are coarse tremors of the extremities. The facial expression may be vacuous or fearful and apprehensive. Speech is usually impossible except for a few stuttering attempts to frame an occasional word; nevertheless the patients persist in attempting to communicate with attendants. Some may be able to write although unable to talk. Sudden fits of crying or laughing may occur without reason. The behavior is extremely bizarre and attitudinizing, with periods of excessive activity characterized by running about the ward and leaping over beds. —Grinker, Roy R., and Spiegel, John P.: War Neuroses, Philadelphia, Blakiston Company, 1945.

Clinical Notes, Suggestions and New Instruments

HYPOGLYCEMIA DUE TO INSULAR ADENOMA OF PANCREAS

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Hyperinsulinism [1] is most frequently caused by a benign adenoma of the beta cells of the islands of Langerhans or by a carcinoma of the islet cells.[2] If the suspected adenoma can be found, the treatment is simple and effective—the malignant group requires radical resection of the pancreas and duodenum with a prognosis as different as is the procedure. It seems advisable to separate these widely divergent lesions and group their reports under the title of the causative lesion rather than under the symptom which may be produced. A review of all cases of benign adenomas has been brought up to January 1944,[3] 127 in number, which includes Whipple's [4] listing of 103 adenomas in a series of 160 cases of islet tumors. In this report there are 27 cases of hyperinsulinemia due to carcinoma and 22 of suspected carcinoma, 49 cases out of a total of 176, in which the symptom was not due to benign adenoma. Similarly, carcinoma of the islet cells may be unattended by hyperglycemia.[5] The rarity of the successful surgical cure warrants the presentation of an additional case.

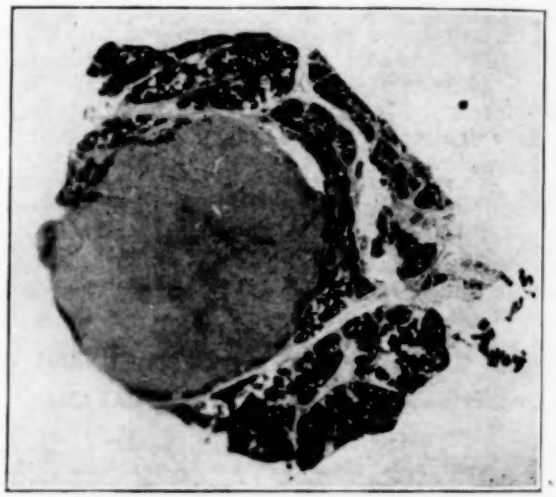

Fig. 1.—Appearance of specimen magnified 4.7 times.

REPORT OF CASE [6]

R. T., a woman aged 55, married, mother of 4 living healthy children, born in Russia, emigrating at the age of 22, was operated on during her first pregnancy in 1914, the appendix being removed for an "extrauterine tumor." In 1926 a panhysterectomy and in 1934 a cholecystectomy were performed. Soon after the third operation, attacks occurred at intervals of three to four weeks, characterized by weakness, dimness of vision and cold extremities, merging into a deep sleep of five to six hours from which she awakened torpid and lethargic. Anorexia and nausea followed, as well as a sense of severe pressure in the right temporoparietal region. Amnesia during

1. Harris, Seale: Hyperinsulinism and Dysinsulinism, J. A. M. A. **83**: 729-733 (Sept. 6) 1924.
2. Frantz, V. K.: Tumors of Islet Cells with Hyperinsulinism, Ann. Surg. **112**: 161-176 (Aug.) 1940.
3. Clyne, R. M.; Leeds, H. M., and Cowdery, J. S.: Spontaneous Hyperglycemia Due to Islet Cell Tumors of the Pancreas, New York State J. Med. **45**: 405-409 (Feb. 15) 1945.
4. Whipple, A. O.: The Surgical Therapy of Hyperinsulinism, J. internat. de chir. **3**: 237-276, 1938.
5. Frantz, V. K.: Tumors of Islets of Langerhans with Hyperinsulinism, New York State J. Med. **41**: 881-883 (April 15) 1941.
6. Case presented at the clinical conference of the Beth Israel Hospital, May 20, 1940.

the attack was partial or complete. Attacks occurred only during the day and seemed to be induced by heavy work.

Her first admission to the Beth Israel Hospital on June 7, 1937 was to the neurologic service, from which she was discharged after a week with the diagnosis of hysterical amnesia. This has been a not infrequent error in diagnosis, since neuro-

Fig. 2.—Upper part of section, insular adenoma; lower part, pancreatic tissue with normal islets.

logic and psychiatric symptoms are frequently noted in hyperglycemia from any cause.[7]

Examination of the patient, who was well developed and well nourished, showed few findings related to the symptoms. She was alert, intelligent and cooperative except in discussion of the cause of her emotional disturbances. Blood glucose was 56, 59 and 66 mg. per hundred cubic centimeters. The glucose tolerance test is noted in the table, line 1.

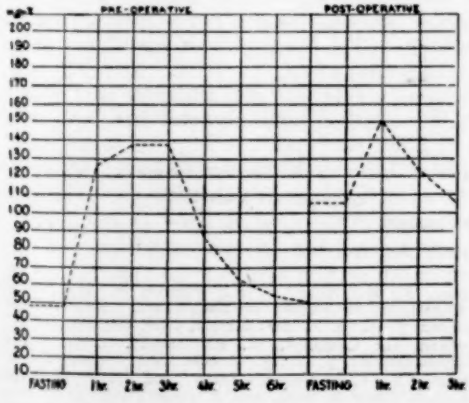

Fig. 3.—Composite glucose toleration curve.

Her second admission occurred on Dec. 28, 1938 for increasing frequency and severity of attacks at intervals of two to three days or two to three weeks, followed by a comatose state lasting four to six hours. Orange juice seemed to be the only food which hastened recovery. Blood glucose ranged from 43 to 87 mg. per hundred cubic centimeters in casual specimens, averaging 58 mg. per hundred cubic centimeters. The glucose tolerance test, line 3 in the table, required six hours for a return to the fasting level. One examination of 50 mg. per hundred cubic centimeters contained 20.2 mg. of nonfermentable reducing substance. Blood amylase 12 units at 37 C. and urine amylase 1,200 indicated a deficiency of starch-splitting enzymes. The blood sugar on an all starch diet was 43 mg. per hundred cubic centimeters and on monosaccharine 53 mg. per hundred cubic centimeters. At no time was sugar, acetone or diacetic acid present in the urinalysis. The basal metabolic rate was minus 7 and minus 3 per cent.

Her third admission occurred on April 24, 1940 for a typical symptom complex[8] of hypoglycemia and blood sugar levels persistently below 30 mg. per hundred cubic centimeters. A diagnosis of hyperinsulinism was made and, after consultation, the patient was transferred to the surgical service with the diagnosis of benign islet adenoma of the pancreas. The details

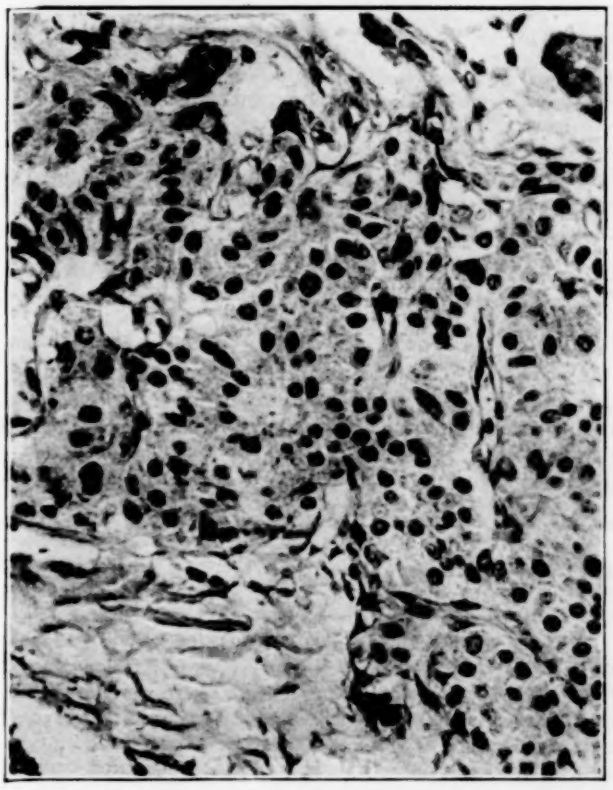

Fig. 4.—Insular adenoma. Characteristic structure of islet tumor.

of the history given to the house surgeon were overheard by a patient in an adjoining bed, a young person with severe diabetes, who volunteered the observation that the symptoms were the same as her own after an overdose of insulin.

Operation was performed on April 29, 1940. Spinal anesthesia was administered with 11.5 cc. of Jones solution. The cholecystectomy scar was excised, exposing component parts of the abdominal wall. Extensive firm adhesions of the omentum were separated from the parietal peritoneum, the under surface of the liver and the duodenum. In the head of the pancreas, below the arch formed by the first two portions of the duodenum, an area about 1 cm. in diameter differed in consistency from the adjacent pancreas. This was pointed out to the staff assistants, who were not convinced of its presence.[2] In order to expose the tumor, the lower edge of the first and second portions of the duodenum were freed from the pancreas and the tumor, encircled by a rim of normal pancreas, excised from the angled bifurcation of a large branch of the superior duodenal artery. Defect in the pancreas was sutured with interrupted 000 chromic

7. Bothe, F. A.: Surgery in Metabolic Disease, Internat. Abstr. Surg. 78: 461-476, in Surg., Gynec. & Obst., June 1944.

8. Banting, F. G., and Best, A. H.: Internal Secretions of the Pancreas, J. Lab. & Clin. Med. 7: 251-266 (Feb.) 1922.

catgut. The abdominal wall was sutured in layers, without drainage, catgut throughout except for three 30 gage wire tension sutures. The duration of the operation was forty-five minutes.

The pathologic examination was made by Dr. Albert Plaut. The specimen was a piece of glandular tissue measuring 23 by 18 by 14 mm. A previous incision partly bisected it. On completion of the incision an almost spherical nodule, 12 mm. in diameter, was found centrally located in the specimen. It was clearly and sharply demarcated from the surrounding lobules of glandular tissue. The glandular tissue was the dull yellow-brown of normal appearing pancreas. The nodule was almost homogeneously gray, except for a few radiating, more shiny gray strands, which appeared to come from the center toward a pseudocapsule. Adherent to the entire specimen was a length of blood vessel, measuring about 1 cm.

A skin flap was 19 cm. long and 1.5 cm. wide, together with underlying fat.

Microscopic examination revealed that the tumor consisted of cords and heaps made up of cells of islet type. The topographic relation between cells and capillaries was the same as found in normal islets. The cellular masses were separated from one another by fairly dense connective tissue. Pseudoglandular structures were numerous, notably in areas where the tissue appeared choked by fibrosis. The cellular pattern was regular. A narrow zone of panereatic tissue at the edge of the nodule was rather fibrotic; otherwise the surrounding pancreatic tissue appeared normal, with moderate obesity. The islands of Langerhans in this tissue were normal.

The postoperative course was free from immediate complications. Blood sugar eight hours after glucose infusion reached 194 mg. per hundred cubic centimeters. There were no further symptoms of hypoglycemia. The patient was alert, responsive and "interested in living." Two weeks after operation signs of a low grade intra-abdominal infection appeared and on May 20 an incision was made into a localized collection of chocolate colored opaque fluid containing autolyzed fragments impossible to identify but which did contain amylase, lipase and trypsin. The wound healed rapidly and the patient was sent home on June 13, 1940.

SUBSEQUENT COURSE

Seven months later the patient was operated on for a fistula-in-ano subsequent to ischiorectal abscess four months before. The glucose tolerance test is noted in the table, line 8. The patient was readmitted for follow-up May 4, 1945, five years after operation. She has been continuously symptom free and in excellent physical and mental health. The glucose tolerance test is noted in the table, line 9.

The glucose tolerance tests are vivid in their difference before and after operation. These examinations should have been made at the same intervals and continued for a six hour period. The fasting blood sugar levels below 30 mg. per hundred cubic centimeters on all tests made during the week before operation are as clearly indicative of the disease as are the postoperative levels of 90 to 120 mg. per hundred cubic centimeters indicative of the cure. The first postoperative test (line 5 in the table) may have been due to the infectious process in the region of the pancreas. By eliminating the figures in this test, an average is shown which is more fairly indicative of the metabolic change and is perhaps more nearly correct. A striking feature in the glucose tolerance curves is that in preoperative tests the fasting blood sugar level was never reached in less than six hours, whereas after operation the fasting levels were reached in three hours or less.

Glucose Tolerance Tests

Number	Date	Fasting	½ Hour	1 Hour	2 Hours	3 Hours	4 Hours	5 Hours	6 Hours	7 Hours	8 Hours
1	6/14/37	56	..	174	182	148	...	...	...	...	...
2	12/29/38	64	90	111	88	80	...	...	...	...	...
3	1/ 6/39	53	..	...	143	216	154	92	54	50	
4	4/24/40	22	74	93	133	100	40	35	...	...	...
Average		49	82	126	138	138	87	63	54	50	...
				Postoperative							
5	5/ 8/40	100	133	190	153	178	174	172	118	108	101
6	6/ 3/40	111	118	148	120	102	...	...	...	...	...
7	6/12/40	104	129	135	...	118	79	89	...	...	...
8	1/18/41	91	125	133	122	100	...	...	...	...	...
9	5/ 4/45	118	..	184	131	95	...	...	...	...	...
Average		105	126	158	131	118	126	130	118	108	101
Average, excluding line 5		106	124	150	124	107	...	...	...	...	...

COMMENT

The progress in the recognition and cure of hypoglycemia due to hyperinsulinism was promoted by Banting,[8] who postulated the condition in 1921. It was pathologically demonstrated in C. J. Mayo's case[9] in 1927 and first cured by Roscoe Graham[10] in 1929. Whipple's numerous contributions have greatly stimulated interest in the surgery of the pancreas.[11] A number of cases of hyperinsulinism have been successfully treated by resection of the pancreas[12] in which neither an adenoma nor a carcinoma of the islet cells has been found. A large percentage of islet adenomas not found at operation have been found at a second operation or on autopsy. Frantz[2] reports 70 islet adenomas in which series 46 were found at operation and 24 found at autopsy. Whipple[13] reported 82 cases in which 47 were not found, of which 6 were located at reoperation, 4 in specimens of resected pancreases and 4 on postmortem examination. It is obviously difficult to locate a benign islet tumor, a difficulty increased when such tumors are multiple or when present in aberrant pancreatic rests.[7] Since the tumor may differ but slightly from the consistency of the adjacent pancreas, as in the case presented in this report, a finer tactile sense must be developed by the experienced surgeon.

SUMMARY

Benign adenomas of the islet cells of the pancreas causing hypoglycemia by hyperinsulinism should be separated in reports from the malignant tumor of the pancreas, which occasionally give a similar symptom complex but from which the treatment differs radically. The lesion gives a typical and easily recognizable symptomatology.

Up to January 1944, 127 islet adenomas have been reported to which the case herewith presented has been added, with a report of a five year cure.

All cases of hyperinsulinism due to benign adenoma may at present be cured by surgery, depending only on the ability to locate the tumor.

1150 Park Avenue.

9. Wilder, R. M.; Allan, F. N.; Powers, M. H., and Robertson H. E.: Carcinoma of Islands of Langerhans: Hyperinsulinemia and Hyperglycemia, J. A. M. A. **89**: 348-358 (July 30) 1927.

10. Howland, G.; Campbell, W. R.; Maltby, E. J., and Robinson, W. L.: Dysinsulinism, J. A. M. A. **93**: 674-679 (Aug. 31) 1929.

11. Whipple, A. O., in Nelson's Loose Leaf System of Surgery, New York, Thomas Nelson & Sons, vol. 3, chapter 4A, p. 5; Present Day Surgery of the Pancreas, New England J. Med. **226**: 515-526 (March 26) 1942; A Consideration of the Surgical Treatment of Tumors of the Pancreas, J. Tennessee M. A. **35**: 179-189 (May) 1942. Whipple and Frantz.[13]

12. Holman, Emile, and Railsback, O. C.: Partial Pancreatectomy in Chronic Spontaneous Hyperglycemia, with Review of Cases of Hypoglycemia Surgically Treated, Surg., Gynec. & Obst. **56**: 591-600 (March) 1933. David, V. C.: Indication and Results of Pancreatectomy for Hypoglycemia, Surgery **8**: 212-224 (Aug.) 1940.

13. Whipple, A. O., and Frantz, V. K.: Adenoma of Islet Cells with Hyperinsulinism, Ann. Surg. **101**: 1299-1335 (June) 1935.

Council on Physical Medicine

The following article has been adopted by the Council on Physical Medicine:

The Council wishes to express its appreciation for the valuable cooperation of the Consultants on Ophthalmic Devices in reviewing this article. The consultants are Drs. Walter B. Lancaster, chairman; Thomas D. Allen, Charles A. Bahn, S. Judd Beach, Conrad Berens, Frederick C. Cordes, Alfred Cowan, William H. Lucdde, Lawrence T. Post and Avery D. Prangen. This paper was also submitted to the American Orthoptic Council and embodies the criticisms and suggestions of that council.

HOWARD A. CARTER, *Secretary.*

WHAT IS ORTHOPTICS?

WALTER B. LANCASTER, M.D.
Boston

Orthoptics deals with defective habits of seeing, defects of binocular vision and defects of ocular motility. How perfectly adapted it is to deal with many of these defects will become apparent when the nature of the defects is made clear. It will also become clear that much which passes for orthoptics is far removed from the real thing.

But first a few words about the history and organization of orthoptics in America. There is a Council on Orthoptics composed of twelve ophthalmologists and four associates who are orthoptic technicians. The ophthalmologists are elected one annually for three years by each of the four interested national medical societies. The associate members are chosen from the American Association of Orthoptic Technicians. One every year for three years is selected by the council; the president of the Association of Orthoptic Technicians, is a member ex officio. Thus the orthoptic technicians have the selection of one associate member of the council.[1] The council exercises general supervision over orthoptics. In particular it issues certificates to orthoptic technicians who may apply and are found competent and who comply with the regulations of the council. At present about seventy-five orthoptic technicians hold certificates, but many of these are not active. However, there is no legal restriction limiting the practice of orthoptics, and most of the orthoptic practice is carried on by optometrists, nurses, office assistants and doctors. Too often this consists in the use of some more or less elaborate apparatus or automatic machine which they are taught to use by the manufacturer's traveling representative. The patient comes day after day and is placed before the apparatus or given pictures to look at with some form of stereoscope. Of actual teaching in the proper use of the term there is very little because the operator has hazy, often erroneous, conceptions of what is wrong and what needs to be done to correct it.

Inevitably one judges orthoptics by the work of such technicians as one has seen. There are only a few who are masters of the best technic, and therefore many doctors, even ophthalmologists, have no first hand knowledge of good orthoptics and on the basis of their own limited experience some condemn the whole thing, some condemn various parts.

The best modern orthoptics was developed in London under Miss Maddox, daughter of the ophthalmologist famous for his work on ocular motility. There is also a French school, but not much has been done by German or other European ophthalmologists. Several American orthoptists have studied in Europe and brought back the ideas of the Maddox school to this country. The oldest school of orthoptics in this country is in New York at the New York Eye and Ear Infirmary. Others have been started at St. Louis, Washington, D. C., Milwaukee and Rochester, N. Y.

Since so much of the orthoptics is done in doctors' offices by technicians whose duties are not limited to orthoptics, and since the training and certification are supervised by ophthalmologists who are not themselves expert in the technic of orthoptics, it was inevitable that the ophthalmologists should overemphasize that part of orthoptics on which they are best informed. Thus they stress the diagnosis of defects of ocular motility and the measurement of deviations which are the province of the doctor and lay too little emphasis on the art of the technician in dealing with the patient. Many doctors have found it convenient to assign to the assistant who does the orthoptics other duties, such as perimetry or refraction or assistance in history taking or records. The remainder of this paper will be limited to orthoptics properly so called.

The defects of binocular vision or of ocular motility are divided into two groups: heterotropia and heterophoria. For the purpose of this paper it is unnecessary to enter into the details of diagnosis and the many subdivisions of classification. What is necessary for a clear conception of orthoptics is an understanding of the nature of heterotropia and of heterophoria in order to appreciate the treatment, since orthoptics is a system of treatment, not a system of diagnosis.

HETEROTROPIA

Ocular motility is necessary because the retina is not equally sensitive all over. The macular area and especially the fovea is far more sensitive and has more acute vision than the periphery. When one wishes to scrutinize an object, the eyes have to be moved so that the image of the object falls on the fovea. This is accomplished by moving the eyes in their orbits and usually the head as well. It is called fixation. Since there are two eyes, it is necessary for normal binocular vision that the two fixate the same object. Otherwise, if the object is imaged on the fovea of one eye and not on the fovea but somewhere on the periphery of the other retina, diplopia and a disagreeable sensation result. To take care of this, the two eyes are linked together in their innervation as a single organ (the binoculus). The innervation necessary for the movements of fixation is reflex and automatic and goes to the two eyes equally so that they move together. Thus if one eye is covered and the other fixates, both eyes move and when the cover is removed that eye is seen to be fixating the same object as the fixing eye. This is the ideal coordination. As a matter of fact it is never exact. The covered eye never assumes the exactly correct position. If the deviation is less than ¼ or ½ degree it is usually disregarded and the position is called orthophoria. If the deviation is one of divergence it is called exophoria and if it is one of convergence it is called esophoria, while a vertical divergence is a hyperphoria.

1. The following have been members of the council arranged in order of years of service on the council; the names starred are the present members: Hardy,* Prangen,* Dunphy, Hitz,* Allen,* Costenbader,* Cordes, Cowan, Cushman,* Fralick,* McCaslin,* Vail, Wheeler, Clay, Dunnington, Gifford, Goar,* Gradle,* Guibor, Lancaster,* Boyes * and Bulson. Associate members: Miss Stark,* Miss Sobacke, Miss Wells, Miss Dicke, Miss Lancaster, Miss Brunn, Miss Powell * and Miss Enos.*

Another reflex is needed to correct this deviation which occurs when the fixation reflex alone is acting. This is the fusion reflex. The stimulus is the presence of two images of an object not on corresponding points of the two eyes, for example one on the fovea of one eye and the other not on the fovea of the other eye. This double stimulus automatically gives rise to innervation, which moves the eyes the (usually) slight amount needed to correct the deviation. The deviation which exists when there is a phoria is often spoken of as a tendency to deviate, since it is not present but latent so long as fusion is allowed to act. Modern physiologists stress the important fact that it is a real deviation and not merely a tendency to deviate. The essential thing is to recognize the role of fusion. Without fusion the deviation is very real and actual—not a mere tendency.

If the deviation is present even when the eye is not covered, it is called heterotropia or tropia or strabismus or squint. The difference between heterophoria and heterotropia is this, and it is quite important to understand it: when one eye is covered and a person looks at an object, the fixation reflex is acting. When both eyes are permitted to look at the object, fusion reflex acts also. In strabismus the fusion reflex does not overcome the deviation—fusion fails. In heterophoria the fusion reflex is effective and does overcome the deviation so as to produce single vision. In the absence of the fusion reflex the eyes assume the fusion-free position,[2] any phoria which is present becomes manifest and so can be measured. The simplest way to find the fusion-free position is to cover one eye and see what happens behind the cover. As the cover is quickly removed the eye will be seen to make a movement of redress to correct the deviation (the phoria).

Besides the use of the cover there are other ways of detecting and measuring the deviation which exists in heterophoria. In all cases what is done is to eliminate the fusion reflex; some methods do this more effectively than others.

The importance of measuring the phoria consists in this, that it is a means of ascertaining what the task is which has to be performed by the fusion reflex in order to get binocular single vision. Whether this task is easy or difficult, that is, whether it will cause symptoms, depends on two things: first, on how large it is. This is measured in prism diopters. It is the strength of the prism which will correct the deviation. Second, on the ability of the patient to overcome the deviation. This is the amplitude or range of fusion.

The disorders of motility and binocular vision in which orthoptics is interested are chiefly concerned with fusion. Fusional power is capable of considerable increase by suitable exercises. The power to fuse is measured by the strength of prism which can be overcome in the interest of single binocular vision. It is called the amplitude of fusion. Thus, if a person can overcome a prism of 30 diopters base out but no more, he has a prism convergence of 30 diopters. If he can overcome a prism of 6 diopters base in but no more, he has a prism divergence of 6 diopters. The measurement and interpretation of the amplitude of fusion require considerable skill and understanding.

2. The position of the eyes when fusion is eliminated is called the fusion-free position. It is also called—miscalled—the position of rest. This is misleading, since it implies that the eyes are at rest, whereas they are by no means at rest since they are acting under the fixation reflex.

By following the natural history of a typical case of strabismus one can get a good idea of the field of orthoptics and of the importance of seizing the best time, the right age, to teach any particular skill. This will be followed by illustrations drawn from heterophoria, which is the other important field of orthoptics.

In neither case will any attempt be made to give a complete account of the various therapeutic measures available to the orthoptic technician. Rather the attempt will be made to show that the trained orthoptic technician has such an understanding of the physiology, normal and pathologic, of the visual act that she can put her finger on the defective function and apply methods of treatment proved by experience to be effective in restoring that function to normal performance. This in contrast to the untrained technician, who has one or several pieces of apparatus he uses for all cases routinely.

DEVELOPMENT OF THE VISUAL APPARATUS

At birth the normal child has very imperfectly developed eyes. There is no macula as yet, the optic nerve fibers are not yet myelinated, the ciliary muscle is not ready to function, the visual acuity may be estimated as of the order of 6/1,000 (practically blind). By 6 months the acuity may be 6/300, at 9 months 6/72, at 2 years 6/12, at 3 years 6/9, and not much before 5 years of age is vision equal to 6/6, while acuity as well as other visual functions continue to improve for several years longer before reaching their maximum efficiency.[3]

Since the anatomic parts of the visual apparatus are not in condition to function well, it is obvious that the physiologic side of seeing is quite rudimentary at birth. Hand in hand with the growth and development of the visual apparatus anatomically is its development physiologically. Here it is important to differentiate those functions which require only the passage of time and the completion of the anatomic apparatus for becoming perfect and those functions which require usage, practice, learning. Thus the finer movements of the vergence reflex (binocular fixation of near objects) cannot develop before the structure of the fovea is complete; but neither can they develop without usage. A useful classification is that between conditioned and unconditioned reflexes. The unconditioned reflexes are inborn and develop independently of usage; examples are the pupillary reaction to light and retinal adaptation to light and darkness. The conditioned reflexes are dependent on usage and on reinforcement. A variety of possible alternatives may present themselves, and which particular type of reflex prevails depends on the "reinforcement" which goes with it, depends on which of the possible alternatives gives the most comfortable easy working of the apparatus, on which gives the greatest reward or satisfaction. This is called reinforcement. If an ocular reflex develops only on usage, then if there is no usage there is no development. Moreover, if the reflex for some reason fails to develop in its proper sequence it may become "extinct"; that is, it may not be capable of restoration by usage attempted at a later date.

A few examples will show the practical bearing and importance of these basic principles. The first example deals with amblyopia ex anopsia and also illustrates the importance of suppression, which will be mentioned again and again, since it is the most important feature of orthoptics; first because more patients have it than

3. Chavasse, F. B., in Worth's Squint or the Binocular Reflexes and the Treatment of Strabismus, ed. 7, Philadelphia, P. Blakiston's Son & Co., Inc., 1939, p. 107.

any other orthoptic disability, second because there is no other way to cure it except by orthoptics and third because it is so neglected by ophthalmologists as a source of ophthalmic failure.

1. Suppose at 2 years of age a child ceases to use one eye. Vision may be 6/12 in each eye at this stage of development. Suppose that for some reason the child learns to suppress one eye. From that time this eye ceases to progress toward better vision. Not only that, but it actually loses some of its already acquired vision and in a few months the vision in the eye that is being suppressed will have dropped to say 6/18, while the vision in the eye that is being used every day has progressed to 6/8 and as time goes on to 6/6. Meantime the unused eye has dropped farther back to say 6/20 or 6/30 or even less.

If now at the age of say 4 years the good eye is occluded by a suitable cover worn continuously all day, the patient is forced to use the poorer eye and it rather rapidly improves under usage. In a few weeks or months it will be back where it was when usage was first interrupted, viz. in this case vision equals 6/12. It will continue to gain, but more slowly, until it overtakes the other eye.

But if the occlusion of the good eye is not begun until the stage of normally developing visual acuity is passed—say at 10 years of age or older—the progress of the poor eye, even though it is now being used constantly, will be very slow and will seldom reach the normal which could be attained if the treatment was given during the period of natural development of visual acuity.

2. A second example is the development of the near reflex, which comprises contraction of the pupil, convergence and accommodation. The convergence-accommodation relationship, which becomes such an intimate relationship in the normal individual, is present only potentially at birth. Various obstacles may interfere with the development of this reflex. Suppose the obstacle is the common one of hypermetropia. As the ciliary muscle develops it becomes possible to focus the image on the retina with more precision. As the macular area develops so that it is capable of utilizing a clearer image, the inducement, the reward, the reinforcement become greater for good focusing or accommodation. The child finds that it sees better by accommodating, thus securing a better image on the retina. It also finds that by converging more strongly it is easier to accommodate. This greater ease of accommodation is an effective reinforcement of the convergence. However, the excess of convergence produces diplopia. Unless this is taken care of—eliminated—the reward is lost, the reinforcement is nil. To eliminate the diplopia is easy by the method of suppression. Then the reward is satisfactory and the reflex is reinforced and soon becomes established. The child is now cross-eyed but is well satisfied because he sees more clearly and comfortably.

3. A third example is furnished by anomalous correspondence. Normally an object seen by both eyes is imaged on corresponding points and is seen single, thanks to the fusion reflex; but in this case the object is imaged on the fovea of one eye and off the fovea of the other eye; result, diplopia. The patient has to learn how to localize in the same place or, rather, in the same relative direction, a stimulus impinging simultaneously on the fovea of one retina and on an eccentric element of the other retina. If the strabismus has developed at a sufficiently early age and if he is adaptable and there is time enough, he usually develops a sort of makeshift binocular vision. Burian has listed the conditions necessary for this to develop as (1) the presence of a certain amount of binocular cooperation—binocular vision must have developed to a certain stage (or be inborn); (2) suitable age and adaptability of the patient; (3) the time elapsed since strabismus became manifest; (4) the type of motor anomaly, and (5) the type of test used, all having important influence on the findings. First he learns to suppress the detrimental image on the fovea of the deviating eye, which conflicts with the desired image seen by the other eye (the straight or fixing eye) on its fovea. Second, an attempt is made to set up a new sensorial relationship whereby some point of the retina of the deviating eye (it tends to be that on which the image of the object being fixated by the straight eye now most frequently falls) learns to see it in the same direction as the straight eye sees it. This is a secondary, new and anomalous way of seeing or projecting it. It is usually called anomalous correspondence and it is one of the stiffest stumbling blocks to the cure of strabismus with restoration of binocular single vision.

What I wish to stress is that the acquisition of anomalous correspondence is an example of learning to see by usage, an example of forming a conditioned reflex. The reinforcement which fosters the formation of this reflex is first the satisfaction of the strong urge toward binocular vision which exists at this age or stage of development even though circumstances make normal binocular vision impossible and, second, the satisfaction of getting rid of a conflicting though fainter image, which tends to be superposed on the image of the object being fixated by the straight eye.

In the same way one should stress the fact that the technic to be followed in treating this condition depends on an understanding of the physiology, normal and pathologic, an understanding of the habits involved and the technic of changing (reforming) habits. The suppression of the foveal image of the deviating eye must be overcome. The patient must be made to become conscious of the stimulation of the fovea and learn to suppress instead the anomalous image (which is always fainter, since it is peripheral, not foveal).

4. A fourth example is reading, which after all is just a complicated conditioned reflex. The apparatus comprises (1) the eye—the visual apparatus in the limited sense—and (2) the neuronic pathways in the brain which are an essential part of seeing in the larger sense of perceiving and understanding what is looked at.

The anatomic components of the visual apparatus and the general layout of the neuronic pathways develop, to a large extent, unconditionally, solely as a matter of time; but, for reading, a further development of the neuronic pathways and a coordination of different parts of the brain, conditioned on usage, an accumulation of memories and experience, all are required for skilled performance. Ordinarily, the process of acquiring this conditioned reflex, the process of learning to read, goes on fairly smoothly with a succession of adjustments and adaptations and acquisitions which take years to perfect.

There may be obstacles, however, which are hard to overcome. The neuronic pathways may be confused, a child may be left handed, may have crossed dominance between eye and hand, resulting in reading difficulty, mirror writing or the like. To overcome these and other difficulties is the task of the specialist in reading

difficulties, which may be regarded as a branch of orthoptics but which is not usually taught in the courses for orthoptists or required in the examination for the certification of orthoptic technicians.

These four examples suffice to show the province of orthoptics in the treatment of defective habits of seeing and of disturbances of binocular vision and motility in children.

The principle then is that both anatomically and physiologically the development of the visual apparatus is incomplete at birth. As time goes on, some of the processes automatically are perfected, some become perfected only by usage, by practice. It is not assured that they will progress in the normal or ideal way. Obstacles may turn the course of development into wrong channels. It is the province of the orthoptist to untangle the complications and lead the child into the normal path to the acquisition of normal reflexes. Thus the cross-eyed child must be taught (forced) to use the amblyopic eye and so recover its ability to see. He must be taught not to suppress but to see double instead, as a normal child does if his eyes deviate; he must be taught to overcome the diplopia by fusion and binocular vision as a normal child does, rather than by suppression. This is done first on a major amblyoscope, and then the child must be further taught to see properly "off the machine" in casual seeing. Naturally the different types of strabismus require different and appropriate methods of treatment. To enumerate them is beyond the province of this paper.

HETEROPHORIA

To return to the other type of motor defect—heterophoria. There are three ways of treating a phoria: (*a*). By operation one can actually reduce the deviation. The eyeball is shifted in the orbit to a position nearer orthophoria, with the result that now fusion has a smaller adjustment to make. (*b*) The adjustment can be made in part by prisms incorporated in the spectacles. This reduces the task of fusion. (*c*) The amplitude of fusion can be increased by suitable exercises so that the task of adjustment to be made by fusion, though no smaller, is easier because the capacity of the adjusting mechanism is greater. This is the function of orthoptics. By suitable exercises in the office and at home it is possible to increase rapidly the amplitude of fusion, and it is found that the patient's task of dealing with heterophoria becomes much easier and the symptoms of eyestrain are relieved. Sometimes not only is the amplitude of fusion increased but the amount of deviation (phoria) may actually be diminished.

Right here a prevalent misconception should be mentioned. It is commonly (and naturally) thought that the increase in range or amplitude of fusion is the result of stronger muscles. According to this view the task of the orthoptic technician is to strengthen certain weak muscles, and the explanation is given to the patient that the eye deviates because of a weak or lazy muscle. This naive conception misses the mark. It leads the attention in the wrong direction. To be sure one function of exercises is to strengthen muscles, but much more commonly their function is to increase the control of the muscles, the coordination of the movements by the nervous system. For example, in practicing the piano one learns to manage the fingers; proficiency as a performer is not a matter of strong muscles but of perfection in the control and use of the muscles. So with drawing, writing, dancing, juggling: practice and exercises and teaching are aimed at the control or coordination of the muscles. The mechanism for ocular movements is a neuromuscular mechanism. The muscles are over a hundred times as powerful as is needed to move the eyeballs if all the fibers of a muscle contracted at once. Hence only a small percentage of the muscle fibers have to act at one time, and as the other fibers are resting they are well able to perform this task when their turn comes and the first lot are allowed to rest. It is to the "neuro" part of the mechanism, not the muscular part, that attention should be directed.

This naive conception of a hypothetical weakness of the muscle or muscles is prevalent among surgeons. They conceive of a tenotomy as aimed at weakening the muscle tenotomized or receded and they conceive of a resection or advancement as strengthening a muscle. The correct conception of shifting the position of the eye in the orbit to a position nearer the zero position (that is, the position where the deviation is zero and consequently the task of the muscles is greatly reduced) explains why it is so frequently best to combine a tenotomy of the antagonist with a resection of a muscle (Dr. Edward Jackson says always, but nearly always is better, though it lacks the emphasis of exaggeration).

A few examples will make clearer what can be accomplished by orthoptics and how orthoptics and other methods of treatment dovetail together in any well conceived plan of dealing with defects of motility and binocular vision.

Esophoria.—(*a*) This is often amenable to glasses which reduce the accommodation, since reduction in accommodation carries with it reduction of convergence. (*b*) Often there is a greatly diminished amplitude of divergence. While the right eye can be abducted easily to its outer canthus and the left eye to its outer canthus, say 50 degrees either way, yet when prism divergence (often miscalled abduction) is tested, diplopia may come at 1 to 1½ degrees (2 or 3 prism diopters) and, as the prism strength is gradually reduced, recovery of single vision may not occur until zero is reached or even beyond zero. Thus the need is clear of increasing the power of divergence, and since the muscles are amply strong as shown by the abduction of either eye (no paresis) it is possible to teach the patient to use his muscles to better advantage and greatly increase his power of divergence. Exercises on the major amblyoscope and other instruments in the office, and home exercises with prisms base in, are very effective. These should be done say ten times a day for a matter of three minutes at a time. (*c*) Such patients are often greatly relieved by temporarily wearing prisms base out until their divergence is increased by exercises enough to dispense with them.

(*d*) There are a good many cases in which operation is indicated, since it is much more rapid in its results and does not make demands on the patient which the doctor may have difficulty in getting him to meet—indeed, it may be impossible for some busy patients to find time for ten to twelve periods of three minutes every day. One is often surprised at the gain that may come from two or three periods a day, but, if the gain is not satisfactory, operation is the proper alternative. After operation a period of orthoptics is frequently desirable, since the patient has to learn a new way of cordinating his muscles after an operation and since in many cases he continues to fall back on suppression as the easy way to escape diplopia without the effort of fusion. What I wish to emphasize is that treatments by glasses, by operation and by orthoptics need to be combined and are not mutually exclusive.

Exophoria.—This is very successfully treated by orthoptics in many cases. If the exophoria is associated with a decidedly poor amplitude of convergence, the indication is clear that the amplitude of convergence should be increased. The response to suitable exercises given with sufficient frequency is usually prompt and is accompanied by relief of symptoms. Here again home exercises are an important aid to rapid progress. One would not think of learning to play the piano with, say, two lessons a week of half an hour and no home practice. The same is true of acquiring any other skill, as in games. The oftener the movements are repeated, the greater the facility—"practice makes perfect." Many persons with exophoria are helped by wearing prisms base in their glasses.

When time is important and it is not practical to give the needed exercises either in the office or at home, operation offers a prompt and effective treatment, especially for the larger amounts of exophoria too large for prisms in glasses or when convergence may be fair but divergence is excessive. Here again postoperative orthoptics is very useful in securing the best results.

Hyperphoria.—This is often classed as not amenable to orthoptics. The only difference is that it is not so easy and it is sure to take more time and perseverance. Moderate amounts, which are far more common than large amounts, of hyperphoria can be satisfactorily remedied by prisms incorporated in the glasses worn by the patient. Large amounts can be remedied by operation, but orthoptics can help in all these cases since the patient has to learn and learns better under good instruction (skilful orthoptic technician) how to use his eyes under the existing conditions whether with or without glasses or surgery.

SUMMARY

Orthoptics is the art of teaching patients, children or adults, how to use their eyes properly. At birth the eyes, including the neuronic pathways involved in vision, are very imperfectly developed. As they grow anatomically they also develop physiologically. Some of this development is dependent on usage. Development may not progress in the normal or ideal way. Obstacles may turn the course of development into wrong channels. Skilful and understanding guidance by the orthoptic technician can lead the patient into the acquisition of more normal and useful habits or reflexes.

Thus the aim of the orthoptic technician is not the strengthening of some muscle or muscles alleged to be weak but is directed toward teaching the patient better control and coordination, better reflex response to his environment; hence the technician is greatly aided by understanding the physiology of vision and the psychology of teaching and of learning. Some apparatus, such as a major amblyscope, a stereoscope, prisms and various small accessories, are indispensable; but a lot of elaborate "automatic" machines will by no means take the place of intelligent skill under close supervision.

Glasses may help greatly, may be indispensable in some cases, but a surprising number can be taught to use their eyes without the glasses which they had been told were indispensable by some one not well informed on the subject of orthoptics.

Operation often saves much time and indeed makes some cases amenable to orthoptics that would be hopeless without surgery. Thus, refraction, orthoptics and surgery form a powerful team and should always work together.

Just as some surgeons are more skilful operators than others and some specialists are more skilful in measuring and treating errors of refraction and motility by glasses than others, so some orthoptic technicians are more skilful than others and should be allowed to spread the knowledge of their methods by advanced or graduate teaching. There is urgent need for opportunities for graduate individual instruction in orthoptics.

520 Commonwealth Avenue.

The Council on Physical Medicine has authorized publication of the following report.

HOWARD A. CARTER, Secretary.

HANOVIA LUXOR "S" ULTRAVIOLET ALPINE LAMP ACCEPTABLE

Manufacturer: Hanovia Chemical & Mfg. Company, Newark 5, N. J.

The improved Luxor Professional Model "S" Alpine Lamp is the result of development in this field during the war. The burner itself is an improvement over the former burner in the lamp of the same name and model number, THE JOURNAL, May 20, 1939. It starts at the snap of the switch and requires no tilting. The mercury arc is established in a quartz tube between two solid electrodes of the activated type in a mercury vapor atmosphere of high pressure. The lamp develops the characteristic spectrum of a high pressure mercury arc. This lamp is designed to give a complete irradiation of one side of the body at one exposure. The time required according to the firm is thirty seconds on average untanned skin at 30 inches distance.

In a laboratory acceptable to the Council on Physical Medicine, the radiant and electrical characteristics were examined. The particular unit tested had the following data on the name plate on the housing of the control unit: Catalog No. S-2303-AS; Type 20504; Serial No. 1745. The tests consisted of radiometric measurements of the intensity of ultraviolet radiation, of wavelengths 3,132 angstroms and shorter, at a distance of 30 inches from the front surface of the burner, under controlled conditions.

To insure constant operating conditions the lamp was connected to a 120 volt, controlled alternating current supply. The radiation measurements were made by means of a balanced thermopile and filters in conjunction with a Thompson galvanometer. The apparatus was calibrated by use of a standard of radiation immediately after the observations on the sample. The observations were made with the burner in a horizontal position, with the reflector set symmetrically with respect to the horizontal plan.

The following results were obtained:

Line Voltage	Operating Current Amperes	Burner Current Amperes	Lamp Output at 30 Inches 3,132 Angstroms and Shorter
112.3	8,175	3.4	2,840 microwatts per square centimeter

Data on current and voltage were taken after a sufficient warm-up period to insure steady conditions. This amounted to at least fifteen minutes.

According to the report of the Council on Physical Medicine of the American Medical Association in THE JOURNAL, Jan. 27, 1940, pages 325 and 326, a minimum perceptible erythema is produced in fifteen minutes by 20 microwatts per square centimeter of radiation of 2,967 angstroms, or an equivalent of 58 microwatts per square centimeter of 3,132 angstroms and shorter from a high pressure hot quartz burner. According to these figures an output of 2,840 microwatts per square centimeter at 30 inches is sufficient to produce a minimum perceptible erythema in a little over eighteen seconds.

Actual measurements were made at only one position, but illumination of a large white screen set up directly in front of the lamp showed a remarkable uniform distribution in the radiation pattern.

The Council on Physical Medicine voted to include the Hanovia Luxor "S" Ultraviolet Alpine Lamp (Improved) in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 16, 1946

TEMPERATURE RECORDING FOR FEMALE FECUNDITY

van de Velde's observation as to the existence of variations in body temperature during phases of the menstrual cycle was cited in a previous editorial.[1] Rubenstein [2] correlated a study of vaginal smears with a study of basal temperature; he found that the basal rectal temperature tends to drop progressively during the phase of follicle development. The low point in the temperature curve is reached when the follicle matures. Barton and Wiesner [3] found in their studies of the temperature in several hundred women that the body temperature on waking in the morning varies in fecund women with the phases of the menstrual cycle. A relatively high temperature is characteristic of the premenstrual phase, and it persists after conception. Persistent low temperature excludes the diagnosis of pregnancy. The diphasic temperature cycle may persist in cases of amenorrhea, but more commonly amenorrhea is characterized by a monophasic waking temperature record. Certain types of infecundity are associated with absence of the high temperature phase. The transition from the low to the high temperature phase coincides with the ovulatory phase. The occurrence of this shift does not, however, constitute a proof of actual ovulation. The authors believe that the waking temperature record may also be employed in determining the "safe" post-ovulatory period when conception will not take place.

From the clinical experience of Barton and Wiesner a level of 99 F. or more sustained for more than sixteen days is characteristic of pregnancy. A level of 98.8 to 98.9 F. sustained for more than sixteen days is highly suggestive of pregnancy. They feel that the pregnancy test for chorionic hormone need not be carried out if the waking temperature is still at the low level or below 98.6 F., even though the period is much overdue. The diagnosis of pregnancy based on high waking temperature was in their experience correct in at least 97 per cent of cases. The diagnosis of nonpregnancy has not produced any errors in their experience so far. Sudden fall of the waking temperature after the high temperature has been maintained for sixteen days or more calls for immediate measures to counteract indicated miscarriage. These studies suggest that the waking temperature cycle is closely correlated with the ovarian cycle and that the thermal shift may be used as an indicator of ovulation but not as positive evidence of its actual occurrence. There is no convincing evidence that the waking temperature cycle depends directly on ovarian secretion and that in particular the high temperature phase is evoked by luteinization, with which it corresponds in time. The occurrence of a well defined diphasic cycle with a sustained high temperature phase supports the diagnosis of fecundity but does not establish it in any respect.

Halbrecht,[4] in his clinical study of the relation of ovarian function to body temperature, confirmed the view of van de Velde that the normal temperature curves of women of childbearing age are diphasic. The difference between the temperature level of the post-menstrual and the premenstrual phase seems to be more or less constant in the various cycles of the same woman. He feels that the basal temperature records offer a sufficiently reliable test to check the ovarian function and that this method may be helpful in the study of female sterility. Basal temperature records in his experience are also helpful in the early diagnosis of pregnancy and can be used to test the efficiency of hormone treatment of functional ovarian disorders. The advantage of the method is that it allows one to check the occurrence of ovulation in a large number of menstrual cycles. In an analysis of body temperatures recorded through 271 menstrual cycles by 130 patients suffering from sterility, he found that 238 of these cycles were diphasic and 33 monophasic. Endometrial biopsy was used to check 27 diphasic and 13 monophasic cycles. The same conclusions could be drawn about ovulation in all but 1 case. Of 40 cases of pregnancy, 37 showed a relatively high temperature level (98.6 to 99.3 F.) and in only 3 cases was there a low temperature level.

Thus medicine would seem to have available now a simple, reliable procedure for determining the time of various features of the menstrual cycle. The many applications of this technic in clinical practice will be readily apparent.

1. Basal Temperature and Date of Ovulation, editorial, J. A. M. A. **124**: 707 (March 11) 1944.

2. Rubenstein, B. B.: The Vaginal Smear—Basal Body Temperature Technic and Its Application to the Study of Functional Sterility in Women, Endocrinology **27**: 843 (Dec.) 1940.

3. Barton, Mary, and Wiesner, B. P.: Waking Temperature in Relation to Female Fecundity, Lancet **2**: 663 (Nov. 24) 1945.

4. Halbrecht, I.: Ovarian Function and Body Temperature, Lancet **2**: 668 (Nov. 24) 1945.

THE TREATMENT OF PRIMARY POLYCYTHEMIA OR ERYTHREMIA

The treatment of primary polycythemia by repeated bleeding and the administration of hydrazine derivatives gives only temporary symptomatic relief by mechanically or chemically reducing the amount of the circulating blood or red cell mass. Radioactive phosphorus when obtainable is the treatment of choice at present. The development of more effective and rational therapeutic measures has been prevented by our ignorance of the causation of the disease. Recent experimental studies of Schafer [1] on the effects of the resection of the carotid sinus with the cardioaortic proprioceptive nerves and of the paravertebral sympathetic ganglions and nerves on vasotonus, blood pressure, oxygen metabolism and peripheral blood cell mass throw an interesting new light on the possible genesis of polycythemia and may open a new and promising avenue for its therapy.

Schafer observed that a polycythemic reaction, in addition to hypertension, developed in 40 per cent of dogs in which the carotid sinus and the cardioaortic proprioceptive nerves had been removed. The polycythemic response regressed in these dogs on subsequent complete paravertebral sympathectomy. However, following a proprioceptive depressor neurotomy in dogs previously subjected to a paravertebral sympathectomy and not infrequently showing vascular hypotension as the result of this operation, a polycythemic reaction ensued. The existence of a relation between the autonomic nervous system and the peripheral cell mass was thus established. Schafer applied this new relationship to the treatment of a patient with primary polycythemia. Following a total paravertebral sympathectomy a rapid drop in the number of erythrocytes to a normal level occurred and the associated untoward subjective and objective symptoms disappeared. Although the number of erythrocytes gradually increased again during the subsequent two years, the disabling symptoms did not recur, thereby permitting the patient to do prolonged and strenuous physical labor. Postoperative complications consisted of a temporary disturbance in the sweating mechanism of the denervated parts of the skin and of definite, but transitory, postural hypotension.

It is known that an anoxemic mechanism interfering with the oxygenation of the marrow is responsible for the development of the erythrocytes following a prolonged exposure to vasoactive agents such as epinephrine, amphetamine, ephedrine, posterior pituitary, lead, nitrates or cyanides, to agents and mechanisms impairing the proper oxygenation of the blood such as carbon monoxide, reduced atmospheric oxygen pressure, pulmonary fibrosis or tumors and cardiac anomalies, and to local interference with the blood supply to the marrow by arteriolosclerosis in this tissue. These observations support the concept that an imbalance of the vasomotor mechanism produced by a disturbance of the equilibrium of the depressor action of the carotid sinus and cardioaortic proprioceptive nerves and the pressor action of the sympathetic system may be responsible for the development of erythremia. Paravertebral sympathectomy would thus represent a logical therapeutic measure. The observations of Schafer are sufficiently well founded to warrant additional study of these problems.

1. Schafer, P. W.: The Etiology and Treatment of Polycythemia Vera Rubra, Ann. Surg. **122**: 1098 (Dec.) 1945.

PENICILLIN ADJUVANT IN VIRUS RESEARCH

In 1942 Hirst [1] of the International Health Division, Rockefeller Foundation, developed a method for the isolation of human influenza virus by direct inoculation of mouth washings into 13 day old chick embryos. The mouth washings were first passed through a collodion membrane so as to remove bacterial contaminations. Hirst found that so much of the virus is lost by collodion filtration as often to render the filtrate noninfectious. Rose and his associates [2] of Columbia University therefore tried to render filtration unnecessary by the use of chemical antiseptics. Preliminary experiments showed that most of the available antiseptics when used in concentrations that would prevent bacterial growth were either lethal for the chick embryo or would interfere with the development of the accompanying virus.

In order to find a more favorable antibiotic, Rose tested the bactericidal or bacteriostatic effects of penicillin when added to sputum. Fifty-five specimens of sputum from patients with respiratory tract infections were selected for this test. Fifty-three of them had bronchitis or pneumonia of bacterial etiology. Two patients had severe gingivostomatitis. The 55 specimens were thoroughly emulsified in an equal volume of nutrient broth followed by low speed centrifugation. The supernatant fluid from each specimen was then divided into 2 parts; to 1 of these 500-1,000 Oxford units of penicillin per cubic centimeter was added.

Forty-nine of the 55 chick embryos inoculated with the untreated supernatant fluid died as a result of bacterial contamination, while 47 of the embryos inoculated with sputum plus penicillin survived. All of the surviving embryos were found to be bacteriologically sterile. Herpes virus was isolated on first passage from embryos inoculated with penicillin-treated sputum from the 2 cases of gingivostomatitis. All eggs inoculated with untreated sputum from the same cases died within twenty-four hours, with failure to recover the virus.

By use of a similar technic Hirst [3] had previously reported 33 successful isolations of influenza virus from throat washings from 33 influenza patients. Untreated throat washings from the same patients led to only 17 positive isolations. Parallel inoculations of ferrets led

1. Hirst, G. K.: J. Immunol. **45**: 293 (Dec.) 1942.
2. Rose, H. M.; Molloy, E., and O'Neill, E.: Proc. Soc. Exper. Biol. & Med. **60**: 23, 1945.
3. Hirst, G. K.: Proc. Soc. Exper. Biol. & Med. **58**: 155 (Feb.) 1945.

to 30 positive immune responses. From these differences Hirst concluded that inoculations of the amniotic sac of chick embryos with penicillin (25 Oxford units per cubic centimeter) plus throat washings is the most effective of present day methods for the isolation of influenza virus.

Use of penicillin in the isolation of viruses other than influenza and herpes has not yet been reported.

Current Comment

NO NEW MEDICAL DIRECTORY UNTIL 1947

Numerous inquiries are being received concerning the publication of a new edition of the American Medical Directory. Orders for the next (eighteenth) edition are not being accepted at this time; copies of the latest edition, published in 1942, are no longer available. One of the current problems in the Directory Department is the difficulty of keeping the records up to date regarding the relocations of the thousands of physicians being released from military service. Principally through the cooperation of the physicians themselves, the secretaries of county and state medical societies and the governmental agencies, considerable information is being received. About 20 per cent of the physicians are returning to their former office addresses or are obtaining new locations for practice, but the majority will first take refresher courses or serve residencies in hospitals. Every effort, nevertheless, is being made to obtain current information regarding all returning medical officers. Another problem that will delay the Directory is the shortage of necessary clerical help in our office and printing departments. Under ordinary circumstances, compilation and printing of a Directory require about twelve months. At present, however, it is doubtful whether a new Directory will be completed and ready for sale before the autumn of 1947. Medical officers particularly who read this comment and have not already notified the American Medical Association of their present location and status should do so at once, so that they may be correctly listed in the biographic files.

PENICILLIN THERAPY

The Pneumonia Technical Advisory Committee to the New York City Department of Health prepared a statement on the use of penicillin for distribution to physicians. Offered when the shortage of penicillin was at its peak, this statement was intended to cut waste of the drug so that more would be available to meet the rise in the incidence of respiratory disease. The committee warned against the use of penicillin for the prophylaxis and treatment of diseases for which it is obviously not intended, the continued treatment of patients long after any effective therapeutic benefit might be expected, and the use of oral preparations which require from three to six times the parenteral dosage and which are absorbed uncertainly from the gastrointestinal tract.

PROCUREMENT AND ASSIGNMENT QUOTAS APPLIED TO PHYSICIAN VETERANS

In its recent release on "Reconversion of the 9-9-9 Program" (THE JOURNAL, Nov. 24, 1945, p. 878) the relationship of physician veterans applying for residencies to the hospital house officer quotas assigned by the Procurement and Assignment Service was not entirely clear. Elsewhere in this issue there appears a statement by the Procurement and Assignment Service clarifying this matter. Veterans may be appointed to hospital residencies in excess of the quota of the hospital. They may remain outside the quota until they have become sufficiently trained to replace residents in that hospital who hold reserve commissions and are therefore eligible for active duty. Hospitals should attempt in this way to replace all residents holding commissions. At the time such replacement is complete the quota of that hospital will no longer be in effect. It should be emphasized again that physician veterans serving as residents need not be counted in hospital quotas initially. The Procurement and Assignment Service further announces that all quotas will be withdrawn from all hospitals on April 1, 1946.

A NEW ABSORBABLE SURGICAL DRESSING

A new absorbable material for use in neurologic surgery, suggested by Spitz and his associates,[1] is a casein fiber prepared from cow's milk and available under the trade name "Aralac." It is plentiful, inexpensive and uniform chemically. Aralac is readily spun into thread, forms an easily manipulated batting and can be repeatedly steam sterilized and stored indefinitely without deterioration. Pledgets of Aralac batting were inserted into the subcutaneous tissues, temporal muscle, subdural and subarachnoid spaces and the substance of the brain of a series of cats. None of the animals showed any ill effects from insertion of the casein fiber. Each was in good health at the termination of the experiment eleven to forty-six days later. At postmortem casein fiber was not visible grossly in any of the specimens. Microscopically small amounts of the fiber remained in 3 animals killed on or before the twelfth day. In cats which were allowed to survive twenty-three days or longer no trace of fiber remained. A few giant cells were found in the eleven day cats. At later stages the local reaction consisted chiefly of a slight fibrous tissue proliferation at or near the site of implantation. There was no evidence in any specimen that the casein fiber itself or any of its breakdown products was toxic to the cortical cells. The results therefore were as favorable as those previously reported from implantations of fibrin foam [2] or oxidized cotton.[3] More extensive studies of the absorbability of various types of plasticized sheets of casein are now in progress, with particular attention to the possibility of antibody formation. If bovine Aralac should prove to have undesirable antigenic properties, it is planned to try casein fiber from human milk.

1. Spitz, E. B.; Ziff, M.; Brenner, C., and Davidson, C.: Science **102**: 621 (Dec. 14) 1945.
2. Ingraham, F. D.; Bailey, O. T., and Nulsen, F. E.: J. Neurosurg. **1**: 171 (May) 1944.
3. Clark, H. E., and Kerns, K. R.: Science **95**: 536 (May 22) 1942.

MEDICINE AND THE WAR

MEDICAL SERVICE FOR VETERANS

ADDRESS BY COLONEL J. C. HARDING, DIRECTOR, OUTPATIENT SERVICE, VETERANS ADMINISTRATION, BEFORE THE CONFERENCE OF SECRETARIES AND EDITORS OF JOURNALS OF MEDICAL ASSOCIATIONS, CHICAGO, FRIDAY, FEBRUARY 8

Speaking as General Hawley's representative, I shall discuss some of the features of the medical program of the Veterans Administration, particularly as it relates to outpatient treatment and the securing of examinations for compensation and pension purposes. I should like to present to you some idea of the problems with which we are confronted and how we hope to solve those problems.

General Bradley, Administrator of Veterans Affairs, and General Hawley have gone on record many times to the effect that they are determined to provide for veterans the very best type of medical service obtainable. They realize that it was the complete cooperation of the civilian doctor, fitted into his proper sphere of interest and ability in the Army, that made our service to the G. I. outstanding in the field of military medicine and surgery. It is planned that this type of service will be continued in the Veterans Administration. The only difference will be that neither the doctor nor the patient will be in uniform.

As one means of accomplishing this, veterans' hospitals will be established in the vicinity of large medical centers. In this way we shall be able to obtain the services of leading members of the medical profession on a consultant basis. Arrangements already have been made with a number of medical schools which are located near Veterans Administration hospitals to utilize their faculties to augment and to improve the staffs at our veterans' hospitals.

Seventy-six of our existing ninety-seven veterans' hospitals are affected by this plan. Sixty of the seventy-five approved medical colleges in the country have expressed a desire to cooperate with the Veterans Administration in establishing high grade professional services in our veterans' hospitals. This can be accomplished, as far as consultants are concerned, by putting the consultants on a basis which will allow them to devote part of their time to veterans' hospitals in addition to engaging in private practice and teaching.

The medical colleges entering into this plan are requested to appoint a "Dean's Committee" to pass upon the qualifications for appointment of senior consultants, consultants or attending physicians and surgeons and ward officer residents.

Senior consultants now exist in most veterans' hospitals near medical centers. They are appointed from prominent men of the various specialties, and they act as supervisory consultants to the manager and the staff of the hospital. They will guide the teaching as well as the clinical service in the hospital.

Consultants or attending physicians or surgeons will be selected from discharged medical officers who are of a caliber to have held teaching positions in medical schools prior to their military service. They should be specialists certified by one of the examining boards. If they have not passed the second half of their board examination because of the entrance into military service, they may be recommended by the Dean's Committee on the basis of their past record. Consultants will be paid on a per visit basis. No two visits may be charged on the same day, and their compensation will not exceed $6,000, or an average monthly basis of $500. Their duties will be those expected of an attending physician in any university hospital.

Ward officer residents are to be selected at present from the ranks of discharged medical officers, whenever possible, by application to the Dean's Committee.

Men who have no credit toward board certification will be placed, on a rotating service, through all the subspecialties of medicine and surgery.

After their first complete rotation they will be allowed, wherever possible, to specify their preference as to a subspecialty. In veterans' hospitals these services can run as long as five years, one year of which will be in instruction in the basic sciences. Teaching institutions with which the veterans' hospitals are cooperating will be responsible for furnishing instruction in the basic sciences prescribed by various boards.

For many doctors who are in an older group and who have been in military service, credit will be given by the boards for certain work performed before and during the war.

MEDICAL SERVICES TO WHICH VETERANS ARE ENTITLED

While the plan which I have just sketched so briefly will raise the standards of treatment in veterans' hospital and will doubtless attract a considerable number of well qualified young physicians, it will not meet the immediate needs of the Veterans Administration in providing all the medical services to which veterans are entitled. At this time I will describe those services at a little greater length.

First, under existing law veterans who are not discharged from service under dishonorable conditions are entitled to hospital care in veterans' hospitals and other government hospitals with which the Veterans Administration has an agreement for the treatment of any disease or injury for which hospital care is indicated. Veterans in need of treatment for non-service connected disabilities are required to make a sworn statement that they are unable to defray their own hospital expenses.

Second, male veterans may also be hospitalized in private or contract hospitals for the treatment of service connected disabilities if government facilities are not available or their physical condition precludes travel to a veterans' hospital.

Third, female veterans, in addition to entitlement to hospital care in veterans' hospitals, may be admitted to private or contract hospitals, both for service connected and non-service connected conditions, if government facilities are not readily available.

THREE MAJOR PROBLEMS

The Veterans Administration, as far as the Office of the Chief Medical Director is concerned, is faced with three major problems. Problem number one is lack of professional personnel. Problem number two is lack of hospital beds. Problem number three is our tremendous outpatient examination and treatment load. A few figures will make the picture clear. At the present time the Veterans Administration has approximately 2,100 physicians on duty and there is a shortage of an equal number to take care of the present load. It is estimated that we should have at least 5,000 physicians to take care of the work in 1947.

The Veterans Administration is operating ninety-seven hospitals and, in addition, has in excess of 8,000 patients hospitalized in other government or civilian hospitals.

As of Jan. 24, 1946 there were over 72,000 patients in veterans' hospitals, of whom 48,000 were receiving hospital care for non-service connected disabilities.

The standard bed capacity of veterans' hospitals is in the neighborhood of 72,000 beds. Authorization has been received to increase this capacity by approximately 50,000 beds, of which 10,000 are now under construction. We also anticipate securing approximately 20,000 beds in army and navy hospitals.

In addition to our own building program, it is the hope of the Veterans Administration that arrangements may be made whereby private hospitals throughout the United States will hospitalize a larger number, perhaps 20,000 veterans, in their own hospitals on a contractual basis.

Many administrative problems will have to be solved so that hospitals will receive prompt and adequate reimbursement for the care which they give our patients. There is no doubt, however, that some sort of satisfactory formula can be worked out. We all realize that the operating costs of hospitals vary, sometimes to a large extent, even though the general service is approximately the same.

OUTPATIENT EXAMINATION AND TREATMENT LOAD

I have spoken of the three major problems in the Veterans Administration. I said that problem number three was our tremendous examination and treatment load of outpatients. As director of the outpatient service, I should like to give an idea of the magnitude of the work involved as well as the nature of some of the problems with which we are confronted. Under existing law a veteran is entitled to outpatient treatment for any disease or injury which was incurred in line of duty and which resulted in his discharge from service, and for the relief of any disease or injury which has been adjudicated as incurred in or aggravated by service.

During the year 1945 over 800,000 treatments were rendered on an outpatient basis; 593,000 of these treatments were rendered to veterans of World War I and 214,000 to veterans of World War II. When it is realized that there will be over 12 million veterans of World War II out of service by June 1946, the amount of work involved in handling the outpatient load alone can be readily appreciated.

In addition to rendering outpatient treatment, the outpatient service is responsible for conducting examinations of veterans filing claims for pension purposes. It is estimated that for the fiscal year 1947 2,121,000 veterans will require examinations for pension purposes. To meet this load, in addition to conducting examinations for other than pension purposes such as examinations to determine the need for hospital care, examinations for insurance purposes and civil service retirement it is estimated that we shall require the service of more than 3,000 full time physicians. It is self evident that this number of physicians will not be available. Consequently the Veterans Administration must rely on the medical profession throughout the country to help us in meeting our obligations to returned ex-service men and women. The medical profession has responded splendidly to General Hawley's appeal in this respect.

For a number of years the Veterans Administration has utilized the services of civilian physicians on a fee basis in conducting examinations for pension and compensation purposes and in rendering outpatient treatments for service connected disabilities. It has been realized for some time that the schedule of fees under which we were operating was inadequate, as it had not been revised for a number of years. Shortly after General Hawley assumed charge of the medical department I suggested that he appoint a committee to study and revise the fee schedule. The General felt, however, that he did not wish to establish any fixed schedule of fees on a national scale but rather to pay fees agreed on with various medical societies which were considered fair and equitable in the communities concerned. In accordance with this policy an agreement was reached with the District of Columbia Medical Society as to the fees to be paid in Washington for examinations, including those of the various specialties, for compensation and pension purposes. About this time, that is in October 1945, representatives of the Monmouth County of New Jersey Medical Society attended a conference in General Hawley's office, at which time an agreement was reached for the care of veterans in Monmouth County. The Monmouth County Plan was placed on a trial basis for a period of ninety days, at the end of which time recommendations were made by the society as to what action should be taken in ironing out the problems and difficulties encountered.

The chief problem encountered by the Monmouth Medical Society in rendering prompt and adequate service to veterans was the delay on the part of the Veterans Administration in making a determination as to the entitlement of veterans to treatment on an outpatient basis. For instance, out of 226 veterans reporting to the Monmouth County clinics during the period from Nov. 9, 1945 to Jan. 25, 1946, definite action had been taken by the Veterans Administration on only 102 cases. This falls far short of the goal which we hoped to attain.

As I stated previously, a veteran is entitled to outpatient treatment for any condition which was incurred in line of duty and which resulted in his discharge from service or for the treatment of any condition which subsequent to his discharge has been adjudicated as incurred in or aggravated by service. Veterans medically surveyed from service because of disability incurred in line of duty do not present any problem, as their claims can be adjudicated on the basis of the medical or hospital report within a short time. However, veterans who have been discharged from service on points and who subsequently apply for outpatient treatment have been required in many instances to wait several weeks or even months before a determination was made as to their entitlement to outpatient treatment. I feel sure that we finally have overcome this major problem, which has been the cause of justifiable criticism throughout the whole country. On the basis of an opinion obtained from our solicitor, a directive has been released within the past few days which permits chief medical officers and their designates to make a tentative determination that the condition for which the veteran is requesting treatment is in all probability due to service on the basis of prima facie evidence, including any service records available and the veteran's sworn statement as to the origin and history of the condition for which he is requesting treatment. Under this directive, chief medical officers and their designates can thus authorize outpatient treatment and emergency hospitalization in private or contract hospitals if in their opinion there is a reasonable probability that the veteran's disability was incurred in or aggravated by service.

While the Monmouth County Plan has been working very satisfactorily, it can readily be appreciated that as there are over three thousand counties in the United States it would be far better, from an administrative standpoint, to work out agreements with state medical societies which would be applicable throughout the entire number of states concerned. We have accordingly made agreements with the Kansas State Medical Society, with the Michigan State Medical Society and the Michigan Medical Service of Detroit, the California Physicians Service of San Francisco and the Medical Service Administration of New Jersey for the furnishing of medical services to veterans. We have also had contacts with many other state medical soceties, including those of Massachusetts, New York, Pennsylvania, West Virginia, North Carolina, Illinois, Missouri and Colorado. As the Kansas plan differs materially from the plans of Michigan, California and New Jersey, it should be of interest to become acquainted with its provisions as well as the law of Michigan, which is practically identical to the plans of California and New Jersey.

The Kansas plan reads as follows:

1. The Kansas State Medical Society will submit a list of its members who desire to do work for the Veterans Administration in accordance with the schedule of fees (approved by the Veterans Administration) in relation to examinations, office, outpatient care and hospital care.

2. The Kansas State Medical Society will furnish to the Veterans Administration a list of the physicians who are competent to do such work in their respective fields. On the basis of these lists, which will be submitted to the manager of the Wichita Veterans Center and which will be augmented from

time to time, members of the society will be appointed as fee designated Veterans Administration physicians.

3. The Kansas State Medical Society proposes to zone the state in order that the nearest qualified physician may be called upon to render the medical service.

4. The Veterans Administration will establish an office adjacent to the office of the Kansas State Medical Society in Topeka, which office will be staffed with a full time or part time Veterans Administration physician and adequate clerical personnel to handle the administrative work. It will be the function of the Veterans Administration physician to authorize outpatient examination and treatments (inpatient and outpatient) and to arrange for the necessary transportation of the veteran. The Veterans Administration physician will review reports of examinations and reports of treatments rendered to determine their adequacy and will return those deemed inadequate to a board of physicians appointed by the Kansas State Medical Society for indicated action. No fees will be paid for examinations or reports which are not acceptable to the Veterans Administration. It shall be the duty of the board appointed by the Kansas State Medical Society to recommend the disqualification of any physician from further work with the Veterans Administration whose work is incomplete or unsatisfactory at the discretion of the board.

5. The Kansas State Medical Society does not propose to make any charge for any service rendered to the Veterans Administration in connection with the supervision of the work performed by its members. It is the purpose of the Kansas State Medical Society in collaboration with the Veterans Administration to render the best possible medical service to veterans in the state of Kansas.

The Michigan contract reads as follows:

1. The Michigan Medical Service will arrange, through physicians registered with it for the rendition of the medical services covered by this agreement, for examinations, treatments and counsel in such cases as may be authorized by the Veterans Administration, Michigan Medical Service reserving the right, however, to decline any particular case.

2. The Veterans Administration will authorize examinations, treatments and counsel. Authorizations for such services will be issued to the Michigan Medical Service; the Michigan Medical Service will advise the veteran to report to a physician of the veteran's selection in his community, such selection to be limited to those physicians registered with Michigan Medical Service for the rendition of services under this agreement.

3. The Michigan Medical Service will be responsible for seeing that reports required by the Veterans Administration are in proper form and that proper records are maintained which will be available for review by the Veterans Administration at any time. The Veterans Administration will review reports of services and will return to Michigan Medical Service for further action, without additional cost to the Veterans Administration, those which do not meet the requirements of the Veterans Administration.

4. Fees for medical services will be in accordance with the fee schedule, which is attached and made a part of the contract. It is understood that unusually involved cases and services not scheduled will be subject to review and recommendation by Michigan Medical Service to the Veterans Administration for determination of appropriate fee.

5. The Michigan Medical Service will make payment to the individual physicians for services rendered in all cases in which authorizations have been issued and will in turn bill the Veterans Administration at the end of each month. The Veterans Administration will remit in accordance with such bill within a reasonable time after receipt thereof.

6. The Michigan Medical Service contemplates that the performance of this contract will be without profit to it, and, if operating results are at variance with this intention, revisions will be proposed to produce such a nonprofit operation.

It will be noted that the essential difference in the plans of Kansas and Michigan is that, in Kansas, members of the Kansas State Medical Society will be appointed as fee designated physicians and the Veterans Administration will pay the physicians direct for services rendered, whereas under the Michigan plan the physicians will be paid by Michigan Medical Service, and they in turn will bill the Veterans Administration at rates in accordance with the schedule of fees agreed on.

As the Michigan Medical Service contract was the first of its kind to be negotiated, certain legal difficulties arose which required considerable time to straighten out. I feel sure that the contract is workable and that it will go a long way toward solving our problem in furnishing outpatient medical service to veterans. I should like to see a plan similar to it placed into effect in as many other states as possible.

Under this contract the veteran is permitted, with some limitations, to select his own physician. It is believed that this will have a good psychologic effect on the veteran in that he will have more confidence in the physician he selects to treat his case than he would in a physician to whom he might be ordered to report for examination or treatment and who, in all probability, would be a total stranger to him.

While certain problems and difficulties will no doubt arise in the administration of this plan or any other plans which we may adopt, I am certain that, with the cooperation already manifested by the various medical societies these problems can be overcome.

It is only through cooperation of this sort that the goal in which we are all interested can most quickly be reached. That goal is to provide for sick or disabled veterans the very best medical treatment and care and the most up to date medical service that it is possible to obtain.

VETERANS

CONSULTANTS NAMED FOR VETERANS' HOSPITALS

Eleven physicians were recently appointed to serve as consultants to the veterans' hospitals by Major Gen. Paul R. Hawley, Acting Surgeon General of the Veterans Administration.

Brig. Gen. Elliott C. Cutler, professor of surgery, Harvard Medical School, and also attached to the Peter Bent Brigham Hospital, Boston, headed the list. Other consultants are:

Lieut. Col. Brian B. Blades, Washington, D. C., chest surgery.

Col. Barrett Brown, Phoenixville, Pa., plastic surgery.

Dr. Trygve Gunderson, Brookline, Mass., diseases of the eye.

Lieut. Col. Aubrey Hampton, Washington, D. C., formerly of Harvard Medical School, Boston, radiology.

Dr. Bernard J. Pisani, New York, gynecology.

Dr. Donald M. Pillsbury, Philadelphia, assistant professor at the Jefferson Medical College and University of Pennsylvania School of Medicine, Philadelphia, skin diseases.

Dr. John N. Robinson, Sharon, Conn., urology.

Col. Roy Glenwood Spurling, Washington, D. C., neurosurgery.

Dr. Ralph Tovell, Hartford, Conn., anesthesiology.

Dr. Robert M. Zolliner, Boston, assistant professor, Harvard Medical School, general surgery.

Consultants now attached with the Army's Medical Corps will serve without pay until they have been released from active duty.

APPOINTMENT AS CONSULTANT FOR MEDICAL CARE OF WOMEN VETERANS

Lieut. Col. Margaret D. Craighill, Philadelphia, was recently appointed consultant for the medical care of women veterans. She is on leave from the Women's Medical College of Pennsylvania in Philadelphia, where she was dean. Dr. Craighill graduated from Johns Hopkins University School of Medicine, Baltimore, in 1924 and entered the service May 28, 1943.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

RECONVERSION OF 9-9-9 PROGRAM

Inquiries about paragraph 3 of section III of directive number 382 (Nov. 6, 1945), relating to the circumstances under which hospitals may exceed quotas, have prompted the following further explanation:

Veterans should be accepted for residencies in hospitals without being counted in the resident quota until they are sufficiently trained to replace a commissioned officer satisfactorily. When a veteran is sufficiently trained to replace a commissioned officer, the officer should be released for active duty at once and at that time the veteran on duty should be counted in the quota. When an institution has thus replaced its last commissioned officer, all quota restrictions are withdrawn as to that institution.

For example, if a hospital has a quota of twelve residencies, six of which are filled by commissioned officers and six of which are filled by women or men who are ineligible for military service, and six veterans beyond the quota, it is expected that, when one of the veterans becomes sufficiently trained so that he can assume the duties of assistant resident in medicine (and there is a commissioned officer filling a position as assistant resident in medicine), the commissioned officer should be released for active duty and the veteran counted in the quota at that time. The hospital will then have five veterans who are not counted in the quota and twelve residents who are counted in the quota, five of whom will still be commissioned officers. This replacement program should continue as rapidly as possible between now and April 1, 1946 until the last commissioned officer has been replaced, at which time the hospital is no longer under any quota regulations.

It should be obvious to every hospital superintendent and medical director that the quicker he makes use of such veterans the more stable will be his staff and the sooner he can return to his peacetime resident program.

PROCUREMENT AND ASSIGNMENT SERVICE RESIDENT QUOTAS

The Procurement and Assignment Service will withdraw the resident quota restrictions on each hospital on the date on which that hospital releases its last commissioned resident and will withdraw all quotas from other hospitals on April 1, 1946.

PROCUREMENT AND ASSIGNMENT SERVICE INTERN QUOTAS

No hospital should accept for internships beginning April 1, 1946 more interns from the senior class graduating in March 1946 than their present intern quota. This rule holds for those hospitals which have 100 per cent of their interns on a July to April term. If the hospital has interns who started their internships after July 1, 1945 they should discount them from their quota and fill the remainder of their quota with March graduates. After April 1, 1946 Procurement and Assignment Service intern quotas may be disregarded.

ARMY

ARMY AWARDS AND COMMENDATIONS

Colonel Howard A. Rusk

The Distinguished Service Medal was recently awarded to Col. Howard A. Rusk, formerly of St. Louis. The citation accompanying the award states that "Col. Howard A. Rush, Medical Corps, from March 1943 to October 1945 bore the heavy responsibilities of chief of convalescent and rehabilitation branch, Professional Services Division, and chief of the convalescent services division, Office of the Air Surgeon, Given the difficult assignment of pioneering the organization of a convalescent services program in each Army Air Forces hospital, he instituted procedures for physical reconditioning and educational training which utilized previously wasted convalescent time. The results of this far reaching program were extraordinarily successful. Hospital readmissions dwindled, the period of convalescence was shortened, sick leaves were reduced, the military and general knowledge and skills of the patients was increased and tremendous improvement of morale in the hospitalized men was noted. The outgrowth of Colonel Rusk's program was the Air Forces plan for the rehabilitation and convalescent care for returning overseas casualties. Through great vision, superior organizational ability and wide experience gained in the practical application of his theories, Colonel Rusk accomplished a task which benefited thousands of soldiers and contributed in important measure to the success of the Army Air Forces' vast medical program." Dr. Rusk graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1925 and entered the service Aug. 18, 1942.

Brigadier General Henry C. Dooling

The Legion of Merit was recently presented to Brig. Gen. Henry C. Dooling, surgeon, Caribbean Defense Command and chief health officer, Panama Canal. The citation accompanying the award said, in part, "Despite greatly increased difficulties due to the growth of population, troop concentrations, the passage of large contingents of military forces through the canal and wartime conditions affecting supply, he maintained high health standards. By his great professional skill, tireless energy and sound judgment General Dooling contributed in important measure to the successful performance of the Panama Canal's war mission." Dr. Dooling graduated from the Medico-Chirurgical College of Philadelphia in 1908 and entered the service Sept. 18, 1917.

MEDICAL ACTIVITIES MOVED TO FORT SAM HOUSTON

Major Gen. Norman T. Kirk, Surgeon General of the Army, recently announced that a move involving approximately 6,000 enlisted men and officers will be completed by March 15, when medical activities of Carlisle Barracks, Pa., and the Medical Section and certain portions of the basic training program at the Army Service Forces Training Center, Fort Lewis, Washington, will be transferred to Fort Sam Houston, Texas.

The concentration of the medical department schools and courses at this new center will represent a saving in the transportation of trainees from one school to another in many cases and also will result in more economical and effective operation of the training program, according to Col. Floyd L. Wergeland, director of the Education and Training Division of the Surgeon General's Office.

Plans are being made for five battalions which will train about 5,000 men in basic and technician courses at Fort Sam Houston. A basic medical department officers' course of approximately 1,100 newly commissioned officers will be in continuous operation, Colonel Wergeland said.

The basic training will require six weeks and the basic technicians' course will take another seven weeks, making a total of thirteen weeks. The technician schools include courses of eight to sixteen weeks for dental, laboratory, x-ray, surgical and medical technicians. There will be common specialist courses for cooks and bakers, chauffeurs, clerks, auto mechanics and sanitary technicians.

There will be a School of Military Neuropsychiatry and a School of Roentgenology and Medical Equipment Maintenance Technician courses. Residency type training for Medical Corps officers will be carried on at Brooke General Hospital, Fort Sam Houston, and also at nine other general hospitals in this country as part of the Surgeon General's plan to provide greater opportunities for professional advancement to the members of the Army Medical Corps.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Arizona

Herzberg, Benjamin, Major, Professional Bldg., Phoenix.
Kohl, Harold W., Col., 100 E. Sierra Vista Dr., Tucson.
Lewis, Joel E., Capt., 1243 E. Monroe St., Phoenix.
Mandel, Meyer M., Capt., 4 E. Congress St., Tucson.
Palmer, Maxwell R., Capt., 2230 E. Hawthorne, Tucson.
Tucker, William P., Major, Florence.
Warrenburg, Clarence B., Major, 313 W. Lewis St., Phoenix.

California

Allen, Carlton S., Lt. Col., 140 Palm Court Dr., Santa Maria.
Anderson, Stanley B., Lt. Col., 1360 Virginia Ave., Glendale.
Bartlett, John C., Capt., 867 Arlington Ave., Berkeley.
Bell, Martin C., Lt. Col., Upper Lake.
Carpenter, Eugene, Capt., 5165 Fountain, Los Angeles.
Christopherson, Einor H., Lt. Col., San Diego.
Clegg, John G., Capt., 1919 Wilshire Blvd., Los Angeles.
Colm, Cyrenus L., Capt., Durham.
Evans, Edward R., Capt., 934 E. Broadway, San Gabriel.
Francis, Kenneth V., Capt., 99 S. 9th, San Jose.
Gates, Francis K., Capt., 520 S. Granada Ave., El Monte.
Hill, Lowell I., Capt., 1414 S. Hope St., Los Angeles.
Hodgin, Robert I., Major, 152 N. Mariposa, Los Angeles.
Holaday, David D., Capt., 2019 Notre Dame, Belmont.
Ireland, Robert M., Capt., 3406 W. Washington, Los Angeles.
King, Robert W., Capt., 210 S. 1st St., San Jose.
Lunsford, William B., Capt., 11738 Chenault, West Los Angeles.
McClellan, Jay H., Lt. Col., Vet. Hosp., West Los Angeles.
Meyer, Hans A., Capt., 45 McLaren Ave., San Francisco.
Miyauchi, Yukio, Capt., 610 W. Main St., Santa Maria.
Mohun, Charles C., Capt., 101 Maple St., San Francisco.
Olson, Frederick A., Capt., 7th Main, Fortuna.
Pinger, Robert R., Lt. Col., 2650 Willow Pass Rd., Concord.
Ryan, Andrew M., Major, 67 Clifford Terrace, San Francisco.
Schaumloffel, R. A., Capt., 312 N. Boyle Ave., Los Angeles.
Sorenson, Einer I., Major, 65 N. Madison Ave., Pasadena.
Stein, Gerald B., Capt., 2200 Post St., San Francisco.
Weinberg, S. L., Major, 6253 Hollywood Blvd., Los Angeles.
Wilson, Harris R., Capt., 820 Magnolia St., Modesta.

Connecticut

Birney, Thomas P., Capt., 18 Seaview Ave., Milford.
Bishop, Courtney C., Major, 9 Austin St., New Haven.
Bodie, William J., Major, 146 Montowese St., Branford.
Carter, George G., Lt. Col., 29 Hillside Dr., Greenwich.
Castagno, Rowe A., Capt., 225 Ward St., Hartford.
D'Esopo, Joseph N., Major, 892 Campbell Ave., West Haven.
Goodrich, William, Capt., 3120 Fairfield Ave., Bridgeport.
Johnson, Wilbur D., Major, 215 Whitney Ave., New Haven.
Kelsey, Weston M., 1st Lt., 160 Myrtle Ave., Westport.
Martin, Edward, Capt., 102 Prospect St., New Britain.
Mazzacane, James E., Capt., 66 Concord St., Hamden.
Mott, Frederick E., Capt., 75 Westwood Rd., N. Haven.
Post, Frederick A., 1st Lt., 717 Howard Ave., New Haven.
Pyrtek, Ludwig J., Capt., 2 Myrtle St., Hartford.
Rourke, Thomas A., Capt., 59 Church St., Greenwich.
Sterrett, Raymond A., Capt., % J. E. Sterrett, New Canaan.
Strayer, Luther M. Jr., Capt., Lordship Rd., Stratford.
Taffel, Max, Major, 789 Howard Ave., New Haven.
Wallman, Lester J., Capt., 82 North St., Stamford.
Weinerman, Edwin R., Capt., 127 Warrenton Ave., Hartford.
Yebovitz, Myer, Capt., Danbury Hosp., Danbury.
Zariphes, Constantine, Capt., 98 Main St., Hartford.

Delaware

Comegys, Richard W., Capt., Clayton.
Flinn, Irvine M. Jr., Major, RD 3, Newark.
Gluckman, Albert G., Capt., 401 W. 20th St., Wilmington.
Mac Fadyen, Douglas A., Major, Wilmington.
Resnick, Elton, Capt., 728 Saville Ave., Wilmington.
Schinfeld, Louis H., Lt. Col., 1039 Pine St., Wilmington.
Taylor, Harry, Major, 5 S. Union St., Wilmington.

Illinois

Allen, John B., 1st Lt., 1835 W. Harrison St., Chicago.
Alsberg, Curt, Major, 5616 Glenwood Ave., Chicago.
Bell, Charles E., Lt. Col., 8630 W. Main St., Belleville.
Blustein, Herman, Capt., 2738 W. Madison St., Chicago.
Branch, Charles D., Lt. Col., 331 Fulton St., Peoria.
Castro, Cosimo, Capt., 6836 Oleander Ave., Chicago.
Chwatal, Herbert F., Lt. Col., 8934 S. Hermitage Ave., Chicago.
Conley, John A., Capt., 113 Van Buren St., Woodstock.
Cooperman, Norman R., Capt., 5528 Hyde Park, Chicago.

Illinois—Continued

Cunningham, James T., Major, 1509 E. Cook St., Springfield.
Curtis, John S., Capt., 103 W. Harrison St., Danville.
De Weerd, James H., Major, 3532 S. California Ave., Chicago.
Druce, Sidney, 1st Lt., 5541 Everett Ave., Chicago.
Egan, Edward M., Major, 1 LeMoyne Parkway, Oak Park.
Faulkner, Harry L., Lt. Col., 2051 Sedgwick St., Chicago.
Frazier, Elijah S., Capt., Effingham.
Freedman, Adio A., Major, 5816 Kenmore Ave., Chicago.
Goforth, Eugene G., Capt., 905 S. Main St., Bloomington.
Goldberg, Aaron L., Capt., 1153 N. Spaulding Ave., Chicago.
Greenburg, Benjamin J., Capt., 2450 N. Kedzie Blvd., Chicago.
Greenspon, Louis I., Capt., 1601 Halsted St., Chicago Heights.
Haver, Harry T., Major, 5920 N. Kenneth Ave., Chicago.
Hess, Edmond R., Capt., 1458 Elmdale Ave., Chicago.
Janus, Arthur L., Capt., 4301 W. Adams St., Chicago.
Jarold, Maurice H., Capt., Elizabethtown.
Karolus, Herbert E., Major, Warren.
Kavka, Selig J., Capt., 1335 Independence Blvd., Chicago.
Krause, Leonard S., Capt., 1867 S. Avers Ave., Chicago.
Kulvin, Max M., Major, 5110 Kenwood Ave., Chicago.
Lauer, David P., Major, 638 Arlington Pl., Chicago.
Levin, Harry, Capt., 6365 Broadway, Chicago.
Livingston, A. E., Lt. Col., 608 Lafayette Apts., Bloomington.
Mackler, Saul A., Capt., 1540 Lake Shore Dr., Chicago.
McMillan, Robert G., Major, 122 S. Michigan Ave., Chicago.
Mason, Michael L., Col., 916 Castlewood Terrace, Chicago.
Matthews, Henry B., Capt., 426 E. 51st St., Chicago.
Meyer, George E., Capt., 1001 E. Monroe, Belleville.
Michaels, Edward R., Capt., 6624 S. Albany Ave., Chicago.
Miller, Robert E., Capt., 1420 N. 42d St., East St. Louis.
Millis, Jack W., Major, 3501 N. Leavitt St., Chicago.
Movius, Alfred H. Jr., Capt., 105 N. Oak Park Ave., Oak Park.
Munn, Alfred A., Capt., 49 E. Oak St., Chicago.
O'Hearn, James J., Capt., 5308 W. Adams St., Chicago.
Pava, Charles, 1st Lt., 1245 S. Sawyer Ave., Chicago.
Pickett, William J., Lt. Col., 7301 Clyde Ave., Chicago.
Priest, Robert E., Major, 4344 Grand Ave., Western Springs.
Reitman, Paul H., Capt., 1306 N. Astor St., Chicago.
Richter, Harry M., Capt., 1031 E. 48th St., Chicago.
Schrey, Edward L., Capt., 1835 W. Harrison St., Chicago.
Schwartz, N. F., Capt., 5733 W. Washington Blvd., Chicago.
Sutton, Charles F., Major, Chillicothe.
Swigert, Verne W., Capt., 2215 Ridge Ave., Evanston.
Szewczyk, Thaddeus S., Capt., 612 Summit Ave., E. St. Louis.
Timberlake, Harold P., Lt. Col., Vet. Adm., Hines.
Trotter, Jay D., Major, 53 S. Adams, Carthage.
Vicari, Frank A., Capt., 2444 W. 35th St., Chicago.
Wall, John C., Capt., 7730 Constance Ave., Chicago.
Werbel, Ernest W., Major, Cook County Hosp., Chicago.
Wilson, Hugh, 1st Lt., 4700 Kenwood Ave., Chicago.
Wormley, Gordon W., 1st Lt., 2208 Cumberland St., Rockford.
Younan, Thomas, Capt., 710 Oakdale, Chicago.
Young, Tommy R., Lt. Col., 512 Market St., Mt. Carmel.

Indiana

Aagesen, W. J., Lt. Col., 627 Citizens Bank Bldg., Anderson.
Brill, William I., Major, 1919 N. Meridian St., Indianapolis.
Callaghan, Winship C., Major, 510 N. Lincoln St., Greensburg.
Childs, Wallace E., Major, 603 S. Main St., Princeton.
Daves, William L., Major, 708 College Highway, Evansville.
Dean, Donald I., Capt., 310 E. 5th St., Rushville.
Gossard, Meredith B., Capt., Kempton.
Helper, Morton, Major, 511 S.E. 1st St., Evansville.
Horsman, Russell K, Capt., Miami.
Jobes, James E., Lt. Col., 4265 Knowlton Rd., Indianapolis.
Kuhn, Robert W., Lt. Col., Indianapolis City Hosp., Indianapolis.
Lapid, Gilbert G., Capt., 4712 Magoun Ave., East Chicago.
Ling, John F., Capt., I. U. Med. Center, Indianapolis.
Loudermilk, Jack L., Capt., RR 17, Box 276, Indianapolis.
McConnell, William C., Capt., Sunman.
Merrell, Basil M., Major, Brownstown.
Pence, Benjamin F., Major, 108 N. Chancey St., Columbia City.
Pentecost, Paul S., Major, Abington Pike, Richmond.
Rotman, Harry G., Capt., 220 N. Park, Jasonville.
Ruff, Carl H., Capt., 216 E. Lincolnway, LaPorte.
Schneider, Charles P., Capt., 2924 W. Md. St., Evansville.
Spivey, Russell J., Major, 3907 N. Delaware St., Indianapolis.
Stafford, William C., Capt., 107 W. Main St., Plainfield.
Stoen, Harold J., Capt., 833 Shawnee Ave., Lafayette.
Ware, James R., Capt., Andrews.
Wayne, Charles M., Lt. Col., 518 S. 5th Ave., Maywood.
Zwerner, Paul F., Capt., 2120 N. 10th St., Terre Haute.

PHYSICIANS SEPARATED FROM SERVICE

Iowa

Anderson, John L., Major, Osceola.
Dulmes, Abraham H., Capt., Klemme.
Eastburn, Harvey B., Capt., 819 River St., Iowa City.
Emanuel, Dennis G., Capt., 902 Newton Rd., Iowa City.
Flickinger, Roger R., Capt., Park Hosp. Clinic, Mason City.
Greenblatt, Jerald, Capt., University Hosp., Iowa City.
Griffith, William O., Capt., Shelby.
Honke, Edward M., Major, 504 Davidson Bldg., Sioux City.
King, Henry A., Major, 115 Jefferson St., New Iberia.
Lemon, Kenneth M., Capt., 515 2d Ave., East Oskaloosa.
Lohmann, Carl J., Lt. Col., 700 Oak St., Burlington.
Moen, Stanley T., Lt. Col., Hartley.
Neu, Harold N., Lt. Col., 1002 Schaller, Sac City.
Pederson, Thomas E., Capt., 2030 Highland Park, Fort Dodge.
Priestley, J. B., Lt. Col., 3833 Greenwood Dr., Des Moines.
Pumphrey, Loira C., Major, 111 Masonic Temple, Keokuk.
Purdy, William O., Major, 1608 Equitable Bldg., Des Moines.
Reiley, Richard E., Major, 915 1st Ave. E., Oskaloosa.
Riedesel, Elmer V., Major, Wheatland.
Rohlf, Edward L., Major, 705 Waterloo Bldg., Waterloo.
Rominger, Clark R., Capt., 202 Lincoln Ave., Waukon.
Rotkow, Maurice J., Capt., 3518 Kingman Blvd., Des Moines.
Scharnweber, Henry C., Capt., 1112 Union St., Boone.
Shepherd, Loyd K., Major, 1424 Locust St., Des Moines.
Simpson, Frederic E., Major, St. Univ. Hosp., Iowa City.
Steffens, Lincoln F., Lt. Col., 1200 Main St., Dubuque.
Sywassink, George A., Lt. Col., 210 Parkington Dr., Muscatine.
Weinberg, Harry B., Major, 2508 Harrison, Davenport.
Weir, Don C., Lt. Col., Griswold.

Kansas

Armstrong, Carroll W., Capt., 135½ N. Santa Fe, Salina.
Bernstorf, Philip W., Capt., 408 N. Fountain, Wichita.
Brewer, William M., Major, 401 W. 6th St., Hays.
Bula, Ralph E., Capt., 532 S. Workman, Lyons.
Cooper, Laurence L., Capt., RR 5, Ft. Scott.
Hill, Edwin R. Jr., Major, Lyons.
Kempthorne, Charles R., Capt., 1849 Fairchild, Manhattan.
Kirkham, Judd H., Lt. Col., Apt. 8 N., U. S. V. A., Wichita.
McKee, Leo F., Capt., 4456 Francis St., Kansas City.
McKee, Richard S., Major, 1210 S. Broadway, Leavenworth.
Marietta, John S., Capt., 760 S. Santa Fe, Salina.
Owens, Guy E., Capt., 520 1st St., Lenexa.
Powers, Harold W., Major, 1819 Westwood Circle, Topeka.
Pusitz, Manuel E., Major, 1434 Campbell St., Topeka.
Raines, Omar M., Major, 1551 Lakeside Dr., Topeka.
Rieke, Frank A., Capt., St. Margaret's Hosp., Kansas City.
Samuelson, E. A., Capt., 3833 Rainbow Blvd., Kansas City.
Simpson, Ronald A., 1st Lt., 307 W. 18th St., Hutchinson.
Steffen, Lawrence F., Major, 203 N. Denver, Eldorado.
Stone, Francis M. Jr., Capt., 304 W. 9th St., Ft. Scott.
Stone, Mark L., Capt., 920 Tyler St., Topeka.
Stout, Samuel L., 1st Lt., 2055 S. Main, Wichita.
Weston, William G., Major, Circle Dr., Arkansas City.

Kentucky

Bennett, Willard D., Major, St. Joseph Hosp., Lexington.
Billington, Charles B., Lt. Col., Richmond.
Duncan, Frank L., Major, Monticello.
Gordon, Harold, Lt. Col., 2543 Broadmeade Rd., Louisville.
Grantham, Everett G., Major, 321 W. Broadway, Louisville.
Howard, Moses W., Major, 2d St., Harlan.
Johnson, Marvin E., 1st Lt., RFD 1, Maysville.
Kirkendall, Walter M., Major, 310 Hillcrest Ave., Louisville.
Leonard, Thomas P., Capt., Box 26, Frankfort.
McCormack, W. R., Capt., 1340 Edgewood Dr., Bowling Green.
Mitzlaff, Louis O., Capt., 313 N. Western Parkway, Louisville.
Rosenfeld, Norman B., Major, 236 Forest Park Rd., Lexington.
Roser, Charles L., Major, 288 Ridgeway, Louisville.
Saam, Henry G. Jr., Major, 3814 St. Germaine Ct., Louisville.
Salmon, David L., Major, 614 N. Main St., Madisonville.
Shaw, Houston W., Capt., 614 Heyburn Bldg., Louisville.
Spurling, Roy G., Col., 404 Brown Bldg., Louisville.
Stark, Ray G., Lt. Col., Kirksey.
Stevens, Robert H., Capt., 1306 S. 3d St., Louisville.
Stratman, Edward J., Major, 1144 Park Ave., Newport.
Swann, Lyson B., Capt., 928 Cherokee Rd., Louisville.
Wright, Earl P., Capt., Pikeville.

Louisiana

Armistead, William W., Major, 1200 Fairfield, Shreveport.
Barker, Frank R., Capt., State Col. Train. School, Alexandria.
Carmoucho, Ernest N., Capt., 517 E. 3d St., Crowley.
Colvin, S. H. Jr., Lt. Col., 1036 Nashville Ave., New Orleans.

Louisiana—Continued

Cook, Byron L., Capt., 418 Richardson St., Minden.
Cox, Francis J., Col., 820 Esplanade, New Orleans.
Everhart, Merrill W., Lt. Col., 623 Royal St., New Orleans.
Fitts, W. L. III, Capt., 824 Royal St., Apt. D, New Orleans.
Freeman, Arthur M. Jr., Capt., 1408 Jackson St., Monroe.
Goldstein, Nathan, Major, 1632 Polymnia St., New Orleans.
Italiano, Anthony J., Capt., 929 Picheloup Pl., New Orleans.
Kelly, James D., Capt., 4119 DeLiard Rd., Monroe.
Kisner, Wendell H., Major, 2522 Morning Glory, Baton Rouge.
LaNasa, Philip P., Capt., RFD 4, Box 236, New Orleans.
Montagnino, Angelo T., Capt., Charity Hosp., New Orleans.
Moseley, Charles J., 1st Lt., 2729 Octavia St., New Orleans.
Pincus, Eugene R., Major, 2206 Jackson St., Alexandria.
Pugh, William W. Jr., Capt., Napoleonville.
Rabinowitz, Herman, Major, 2303 Octavia St., New Orleans.
Risser, Joe A., Major, 3500 Prytania, New Orleans.
Sewell, Bennett N. Jr., Major, Boyce.
Stern, Henry M., 1st Lt., Charity Hosp., New Orleans.
Suares, John C., Major, Charity Hosp., New Orleans.
Texada, Blanchard H., Major, 1740 White St., Alexandria.
Vaudry, J. W., Capt., 833 S. Carrollton Ave., New Orleans.
White, John A. Jr., Capt., 1929 S. Carrolton Ave., New Orleans.
Williams, Donald B., Major, Charity Hosp., New Orleans.

Maryland

Brandfield, Ira I., Capt., 305 W. 2d St., Frederick.
Brown, Brooks G. Jr., Capt., 1604 Carey Lane, Silver Spring.
Bryan, Elizabeth L., Capt., 3702 Duvall Ave., Baltimore.
Daly, Joseph M., Major, 8306 16th St., Silver Spring.
Dembrow, William L., Major, 9310 Coles Rd., Silver Spring.
Hixon, Clayton H., Lt. Col., 604 E. Woodbine St., Chevy Chase.
Karfgin, Walter E., Lt. Col., 4331 Harford Rd., Baltimore.
Katzberg, Arthur J., Capt., South Baltimore G. H., Baltimore.
Kelly, Edmund B., Major, 1306 Eutaw Pl., Baltimore.
Merkel, Walter C., Lt. Col., 3333 N. Charles St., Baltimore.
Miller, Earl E., Major, 6623 Eastern Ave., Takoma Park.
Miller, Mitchell H., Capt., Johns Hopkins Hosp., Baltimore.
Mountford, Arthur H., Lt. Col., 4622 Harvard Rd., College Pk.
Nichols, Edward, Capt., Johns Hopkins Hosp., Baltimore.
Nowak, Sigmund R., Capt., 408 S. Patterson Park, Baltimore.
Phillips, George F., Capt., 1902 McCulloh, Baltimore.
Porter, Charles B., Capt., 2338 N. Calvert St., Baltimore.
Rutledge, Benjamin H., Lt. Col., Ellenham Rd., Ruxton.
Schnebley, John T., Major, 2022 Lanier Dr., Silver Spring.
Snyder, Nathan, Capt., 3903 Dolfield Ave., Baltimore.
Waller, William K., Lt. Col., 4327 Marble Hall Rd., Baltimore.
Warren, Leon H., Lt. Col., 319 Fairfield Dr., Bethesda.
Weiner, Hyam A., Capt., 9 E. Biddle St., Baltimore.

Massachusetts

Abrams, Herbert, Capt., 10 Staples St., Lowell.
Adams, Lambi N., Capt., 107 Millbury St., Worcester.
Alexander, Harold G., Capt., 389 Essex St., Salem.
Benedetti, Charles, Capt., 66 Rogers Ave., Lynn.
Blumgart, Herrman L., Lt. Col., 330 Brookline Ave., Boston.
Boynton, George H., Capt., 1 Cummings, Billerica.
Chiminello, Frank J., Capt., 48 Elm St., Quincy.
Cobb, Sidney, Capt., 334 Adams St., Milton.
Conway, Raymond F., Capt., 2068 Northampton St., Holyoke.
Davis, Allan L., Lt. Col., 28 Lenox St., West Newton.
Dushane, Joseph E., Capt., 449 Main St., Haverhill.
Erlanger, Herman, Major, 175 Hemenway St., Boston.
Faber, David, Capt., 7 Creedway, Taunton.
Finnell, Ambrose F., Capt., 311 Ashley Blvd., New Bedford.
Fisher, Alexander N., Capt., 823 High St., Westwood.
Glodt, Herbert R., Capt., 19 Thatcher St., Brookline.
Goldberg, William N., Major, 31 Conant St., Danvers.
Grace, James J., Capt., 75 Osborne Terrace, Springfield.
Haley, William T. Jr., 1st Lt., 531 Beacon St., Boston.
Hindle, William V., Capt., 32 Queensbury St., Boston.
Horton, William H., Capt., 61 Albion St., Fall River.
Hubbard, John P., Col., 97 Randolph Ave., Milton.
Kalish, Louis L., Capt., 802 Blue Hill Ave., Dorchester.
Kelly, Albert L., Major, 37 Brockton Ave., Albington.
Klein, Leonard M., Capt., 145 Townsend St., Roxbury.
Lathrop, Frank D., Major, 25 Whittier Rd., East Natick.
Lynch, John B., Capt., 660 Columbia Rd., Dorchester.
Macklin, James J., Capt., 51 Museum St., Cambridge.
Manwell, Edward J., Major, 20 Ward Ave., Northampton.
Marks, George A., Lt. Col., 85 Bacon St., Winchester.
Minihan, John C., Capt., 1 Kimball St., Haverhill.
Montgomery, Eugene P., Capt., 333 Longwood Ave., Boston.
Mullen, Lawrence G., Capt., 10 Hollis St., Cambridge.
Naterman, Hyman L., Major, 10 Autumn St., Boston.

PHYSICIANS SEPARATED FROM SERVICE

Massachusetts—Continued

Nevins, Simon H., Capt., 611 Adams St., Quincy.
O'Konogi, Hugo S., Capt., 601 Tremont St., Boston.
Orris, Harry W., Capt., 36 Surf Side Rd., Lynn.
Pichler, Edmund O., Capt., 43 Lancaster St., Worcester.
Pohas, George J., 1st Lt., 19 Broadway, Rockport.
Pratt, Gordon C., 1st Lt., 118 Westmoreland Ave., Longmeadow.
Quigley, George E., Major, 33 Green St., Newton.
Raymond, William H., Capt., GE Disp., 920 Western, Lynn.
Rudolph, Israel, Capt., 1543 Robeson St., Fall River.
Scanlon, James G., Capt., 62 West St., Leominster.
Schwartz, Robert, Capt., 1017 River St., Hyde Park.
Seltzer, Joseph, Capt., 49 Irving St., Newton Centre.
Stewart, Artemas J., Lt. Col., 37 Glenwood St., Lowell.
Tanner, Dean W., Major, 721 Huntington Ave., Boston.
Thorndike, Augustus, Col., 509 Hammond St., Chestnut Hill.
Vurguropulos, Xenophon A., Capt., 21 Gold St., Lowell.
Zellin, Morris, Major, Vet. Adm. Facility, Bedford.
Zollinger, Robert M., Col., 15 Bracebridge Rd., Newton Center.
Zonderman, Bernard, Major, 10 Centennial Ave., Revere.

Michigan

Agin, Lambert J., Capt., 1354 Delaware Ave., Detroit.
Arminski, Thomas C., Major, Route 2, Belleville.
Baker, Henry K., Capt., 1217 Union Industrial Bldg., Flint.
Barak, Lewis R., Capt., 7448 W. 7th Mile Rd., Detroit.
Barenholtz, Benjamin, Capt., 1761 Seward Ave., Detroit.
Boileau, Thornton I., Capt., 16546 Parkside, Detroit.
Clark, Nelson H., Capt., 101 W. 26th St., Holland.
Cohen, Hyman H., Capt., 423 Washington Ave., Monroe.
Dickstein, Bernard, Capt., 1154 Calvin St., Grand Rapids.
Durham, Everett W., Major, 21733 Audrey Ave., Dearborn.
Eno, Laurel S., Capt., Harper Hosp., Detroit.
Flanders, John P., Capt., 624 Borgess Ave., Monroe.
Forcey, Clarke M., Major, Receiving Hosp., Detroit.
Frothingham, Joseph R., Capt., 174 Winthrop Rd., Brookline.
Goldman, Aubrey, Capt., 3342 Chicago W., Detroit.
Goldman, Bernard J., Capt., 3354 Sturtevant, Detroit.
Hart, John C., Capt., 10580 Beaconsfield, Detroit.
Himmelberger, Russell J., Major, 412 S. Butler, Lansing.
Hodges, Jason, Capt., 7023 Harper Ave., Detroit.
Hollander, S. Capt., 2027 Godwin Ave. S.E., Grand Rapids.
Johnson, Thomas D., Capt., 1415 Glynn Ct., Detroit.
Kamin, Louis E., Capt., Vet. Adm. Facility, Dearborn.
Kaufman, Lewis D., Capt., 4002 N. Saginaw St., Flint.
Kaye, Raymond J., Capt., % Clair King, RR2, Palmyra.
LeGalley, Kenneth B., Capt., 1310 Pine St., Port Huron.
Lentine, James J., Capt., 4201 Van Dyke, Detroit.
Meisel, Edward H., Capt., 413 Lingle Lane, Midland.
Morrow, Robert J., Capt., 411 W. Ottawa St., Lansing.
Pensler, Meyer, Capt., 2483 Hazelwood Ave., Detroit.
Rivard, Charles L., Major, 22420 Statler Blvd., St. Clair Shores.
Rueger, Milton J., Capt., 1914 Fleetwood, Grosse Point.
Runge, Paul W., Major, University Hosp., Ann Arbor.
Ruth, John G., Capt., 174 Searles, Benton Harbor.
Scott, William C., Capt., 1412 Washington Hts., Ann Arbor.
Small, Henry, Capt., 18674 Warrington Dr., Detroit.
Stageman, John C., Major, 8922 E. Outer Dr., Detroit.
Stanley, Sherburn M., Major, Henry Ford Hosp., Detroit.
Stefani, Raymond, T., Capt., 13516 Stoepel, Detroit.
Stewart, George W., Capt., 2902 State St., Saginaw.
Stobbe, Godfrey D., Capt., 2521 Lothrop Ave., Detroit.
Stockwell, B. W., Major, 1170 Longfellow Ave., Detroit.
Stover, Virgil E., Capt., 3209 Jefferson Dr. S.E., Grand Rapids.
Sugar, Sam, Capt., 3506 Harding Rd., Jackson.
Swenson, Leland L., 1st Lt., 429 Adams St., Grand Rapids.
Timreck, Harold A., Capt., Beaverton.
Warner, William J., Capt., 18234 Birchcrest Dr., Detroit.
Wellman, John M., Col., 301 Seymour, Lansing.
Wiechowski, Henry E., Capt., 2645 Zinow St., Hamtramck.

Minnesota

Anderson, Waldo P., Capt., Buffalo.
Balcome, Milton M., Capt., 1480 Raymond Ave., St. Paul.
Beckman, Wallace G., 1st Lt., 5748 Nicollet Ave., Minneapolis.
Berman, Reuben, Major, 3528 Holmes Ave., Minneapolis.
Catinella, Paul J., Major, Mayo Clinic, Rochester.
Ceplecha, Stanley F., Lt. Col., Redwood Falls.
Cunningham, Charles B., Capt., 401 S. First St., Virginia.
Davis, Luther F., Capt., Wadena.
Erickson, Alvin, Major, Ivanhoe.
Frank, Harold J., Capt., New Prague.
Glickman, Leo G., Major, Vet. Adm. Facility, Minneapolis.
Grindlay, John H., Major, Mayo Clinic, Rochester.
Hollenhorst, Robert W., Major, 121 9th Ave. N., St. Cloud.

Minnesota—Continued

Jensen, Nathan K., Lt. Col., 184 Seymour Ave., Minneapolis.
Kusz, Clarence V., Capt., 742 Hawthorne Ave., St. Paul.
Lyon, John D. Jr., Major, 3617 Pleasant Ave. S., Minneapolis.
Mac Millan, David G., Capt., 801 SE 6th St., Minneapolis.
MacRae, Gordon C., Lt. Col., 3008 E. 2d St., Duluth.
Marks, Roger W., Capt., 740 Chippewa Ave., St. Paul.
Meyer, Jules O., Major, Grand Rapids.
Minge, Raymond K., Capt., Clarkfield.
Monson, Einer M., Capt., 4505 York Ave. N., Minneapolis.
Pankratz, Peter J., Capt., Mountain Lake.
Papermaster, Theodore C., Capt., 705 3d Ave. S., St. Cloud.
Passarella, Frank A., Major, Vet. Adm., St. Cloud.
Pearson, Clarence C., Lt. Col., Mayo Clinic, Rochester.
Perlman, Everett C., Lt. Col., 620 Med. Arts Bldg., Minneapolis.
Ravits, Harold G., Capt., 918 Osceola Ave., St. Paul.
Schilla, Frederick W. Jr., Major, 766 Sims St., St. Paul.
Schwarz, Frank W., Major, Met. Adm., Ft. Custer.
Seashore, Rosel T., Capt., 810 Med. Arts Bldg., Duluth.
Smith, Durand, Lt. Col., St. Cloud.
Walsh, Edward F., Capt., 1540 Roblyn Ave., St. Paul.
Wilder, Robert L., Major, 4525 Wooddale Glen, Minneapolis.

Missouri

Adler, Morton W., Major, 7527 S. Broadway, St. Louis.
Aldredge, William M., Capt., St. Louis City Hosp., St. Louis.
Appleberry, Charles H., Lt. Col., 706 W. Main St., Flat River.
Ashmore, Buell L., Major, 515 Benton Ave., Excelsior Springs.
Beam, Sim F., Col., 52 Middlesex Dr., Brentwood.
Benincasa, Anthony V., 1st Lt., 4434 Ashland Ave., St. Louis.
Birsner, Louis J., Lt. Col., 634 N. Grand, St. Louis.
Buckner, Robert C., Major, Mexico.
Cady, Lee De, Lt. Col., 46 Hillvale Dr., St. Louis.
Coffelt, Kenneth C., Capt., 832 E. Grand, Springfield.
Drury, Robert L., Capt., 5218 Pernod, St. Louis.
Fish, Virgil O., Lt. Col., 780 Yale Ave., University City.
Frazier, Victor E., Major, 6323 Main St., Kansas City.
Graves, George T. Jr., Major, State Hosp. 4, Farmington.
Harris, Harold S., Capt., Troy.
Harrison, Robert K., Capt., Mo. Methodist Hosp., St. Joseph.
Heimann, Verne R., Capt., 5041 Waterman Blvd., St. Louis.
Ho, Kwan H., Lt. Col., 6746 Marquette Ave., St. Louis.
Keffler, Karl L., Capt., 1943 N. 11th St., St. Louis.
Keys, Edgar H. Jr., Capt., 5465 Cabanne Ave., St. Louis.
Kipen, Charles S., Capt., 216 S. Kingshighway, St. Louis.
Kircher, T. E. Jr., Major, 2006 Brentwood Ave., Brentwood.
Klingner, George M., Major, 1437 Washington, Springfield.
Lindquest, Carl N., Major, 106 W. 14th St., Kansas City.
Luppens, Albert F., Lt. Col., 3918 S. Benton, Kansas City.
McDowell, Edward A., Major, 2601 N. Whittier, St. Louis.
McLaughlin, Robert J., 1st Lt., 94 Aberdeen Pl., Clayton.
Mira, Joseph J., Capt., City Hospital, St. Louis.
Morton, Roscoe F., Capt., City Hosp., 1515 LaFayette, St. Louis.
Payne, Voris R., Capt., City Hosp., St. Louis.
Pearson, Paul E., Major, % A. G. Mudd, R 3, Leeds Station, Kansas City.
Peck, Chester R. Jr., Capt., Malden.
Perelman, Harry, Capt., 216 S. Kingshighway, St. Louis.
Poe, John S., Lt. Col., 6249 Washington Blvd., St. Louis.
Purcell, Harry K., Capt., 1325 S. Grand Blvd., St. Louis.
Rigney, Levi M., Capt., 1039 E. Park Dr., Springfield.
Rizzo, Ettore G., Capt., Oregon.
Rodman, George H., Major, 2415 Kingshighway, DePaul Hosp., St. Louis.
Rosenbaum, Harry D., Major, 7386 Kingsbury, University City.
Roufa, Joseph F., Capt., 7045 Northmore Dr., University City.
Schilling, Robert D., Major, 7730 Davis Dr., Clayton.
Schupmann, Gustav A., Capt., Ballwin.
Shefts, Lawrence M., Major, Barnes Hosp., St. Louis.
Shelton, Edward O., Capt., 109 W. High St., Eldon.
Spelman, Arch E., Major, Community Hosp., Smithville.
Stephan, August P., Capt., 3649 Vista Ave., St. Louis.
Stewart, John W., Col. 275 Union St., St. Louis.
Strub, Giles J., Major, 4601 Pope Ave., St. Louis.
Sutherland, Richard L., Major, 3311 E. 30th St., Kansas City.
Wilson, Robert B., Capt., RFD 6, Independence.
Yancey, Daniel L. Jr., Lt. Col., 500 Holland Bldg. Springfield.
Zwart, Edward A., 1st Lt., 4020 Hartford St., St. Louis.

Montana

Gnose, Donald D., Capt., Broadwater Hosp., Townsend.
Harmon, George A., Major, Fort Harrison.
Lipow, Eugene G., Major, Flathead Agency, Dixon.
Movius, Arthur J. Jr., Capt., 1136 N. 28th St., Billings.
Sale, George G., Major, 420 McLeod Ave., Missoula.

PHYSICIANS SEPARATED FROM SERVICE

New Hampshire

Clough, Joseph M., Major, New London.
Feltner, John B., Capt., Littleton.
Israel, Julius, Capt., 36 High St., Berlin.
Kellett, Harry R., Capt., Main St., Salem Depot.
Kelly, Adolphus B., Major., Colby St., Colebrook.
Kennard, John H., Capt., 967 Elm St., Manchester.
Lombard, Everett F., Capt., Short Falls.
Stearns, Carl M., Capt., 20 Pine St., Claremont.
Theobald, Louis C., Capt., 69 High St., Exeter.

New Jersey

Alpren, Bernard F., Capt., 34 Auburn St., Paterson.
Angelo, Joseph A., Major, 10 Centre Ave., Secaucus.
Bauman, Richard O., Capt., 17 Hillside Ave., Newark.
Beckett, Ronald S., Major, Box 208, Red Bank.
Belafsky, Henry A., Major, 150 Green St., Woodridge.
Carbone, Ralph, Capt., 2431 Lemoine Ave., Coytesville.
Clement, Baxter L., Capt., 15 Washington St., Newark.
Cott, Abe A., Capt., N. J. State Hosp., Marlboro.
De Grace, Frank H., Capt., 344 Gregory Ave., Passaic.
Del Duca, Vincent P., Capt., 510 E. Main St., Moorestown.
Di Leo, Victor S., Capt., 66 Central Ave., Orange.
Eldkraut, Edward C., Capt., 129 Highland Ave., Passaic.
Fridrich, Harry E., Capt., 4728 Browning Rd., Merchantville.
Graeter, Fritz A., Capt., 265 Gregory Ave., Passaic.
Grueninger, Edward F., Capt., 24 Columbia Ave., Cliffside Park.
Hicks, Alfred M., Major, 63 N. Fullerton Ave., Montclair.
Hughes, Samuel B., Capt., 246 E. Pine Ave., Wildwood.
Kohn, Joseph J., Capt., 107 Market St., Trenton.
Kraemer, Manfred, Major, 234 Roseville Ave., Newark.
Kraut, Arthur M., Lt. Col., 266 Barrow St., Jersey City.
Long, Elias E., Capt., Monmouth Mem. Hosp., Long Branch.
McCune, Wallace H., Capt., 192 Paterson Ave., E. Rutherford.
Major, Morton M., Capt., 4212 Ventnor Ave., Atlantic City.
Mazzarella, Carl L., Capt., 84 Maple St., Paterson.
Miller, William H., Capt., 37 S. Main St., Woodstown.
Mizroch, Solomon B., Major, 40 W. Palisade Ave., Englewood.
Pindar, Arthur W., Major, 627 Queen Anne Rd., Teaneck.
Platt, Edward V., Capt., 221 8th Ave., Haddon Heights.
Protzman, Thomas B., Col., 408 Conrad Rd., Englewood.
Pusin, Max N., Capt., 100 Clifton Pl., Jersey City.
Repta, Stephen Jr., Capt., 804 Madison Ave., Union.
Ritter, Morton D., Capt., 37 S. Kingston Ave., Atlantic City.
Rubin, Abraham A., Capt., 379 Washington Ave., Belleville.
Santangelo, Joseph A., Capt., 286 Clifton Ave., Newark.
Satulsky, Emanuel M., Major, 652 Park Ave., Elizabeth.
Schneider, Richard C., Capt., 874 S. 13th St., Newark.
Schwartz, Harold B., Capt., 63 Palisade Ave., Union City.
Sharlin, Herbert S., Capt., 17 Treacy Ave., Newark.
Shuster, Samuel A., Capt., 101 S. Rhode Island, Atlantic City.
Sobin, Julius, Lt. Col., 24 Waverly Ave., Newark.
Sommer, George N. J. Jr., Lt. Col., 120 W. State St., Trenton.
Spritzer, T. D., Major, S. Wash. Ave.-Newmkt Rd., Dunellen.
Stueck, George H. Jr., Major, 315 Spring Ave., Ridgewood.
Visceglia, Frank R., Capt., 99 Gregory Ave., Passaic.
Wallis, Josiah K., Capt., 78 Alexander St., Princeton.
Wikoff, John L., Major, 799 Pennington Ave., Trenton.
Zweibel, Leonard, Capt., 871 S. 11th St., Newark.

New York

Abramson, Arthur, Major, 371 Ft. Washington Ave., New York.
Axell, Joseph, Capt., 297 Humboldt St., Brooklyn.
Battista, Vincent J., Capt., 2161 Bruckner Blvd., New York.
Beck, John, Capt., 630 Victory Blvd., Staten Island.
Bernstein, Saul, Capt., 311 E. 8th St., New York.
Biffer, Louis, 1st Lt., 141 Stanton St., New York.
Borak, David, Major, 560 W. 218th St., New York.
Brayton, Donald F., 1st Lt., St. Luke's Hosp., New York.
Brown, Harold, Capt., 305 W. End Ave., New York.
Bulger, C. D. J., Capt., 85 Old Mamaroneck Rd., White Plains.
Campbell, Eldridge H. Jr., Col., 32 Willett St., Albany.
Canaan, Robert, Capt., 67-79 Groton St., Forest Hills, LI.
Carpenter, Leonard D., Capt., Germantown.
Clement, Stephen M., Capt., 1321 Genesee Bldg., Buffalo.
Cohen, Victor L., Major, 760 Potomac Ave., Buffalo.
Conly, Hugh E., Capt., 164 New York Ave., Brooklyn.
Contino, Charles A., Capt., 330 Waverly St., New York.
Cooke, Stanley J., 1st Lt., 133 Curtis Pl., Auburn.
Copulsky, Louis, Capt., 2020 Kings Highway, Brooklyn.
Danzig, Samuel D., Capt., 1820 Crotona Ave., New York.
DePasquale, Matthew N., Capt., Laurel Ave., East Northport.
Dooley, Paul, Capt., 272 Ontario St., Buffalo.
Eisenberg, Eli, Capt., 8100 19th Ave., Brooklyn.
Finegan, Rexford W., Major, 303 E. 20th St., New York.

New York—Continued

Francis, Vincent D., Major, 7101 Colonial Rd., Brooklyn.
Freeland, Edward M., Major, N. Y. Life Ins. Co., New York.
Gartland, William J., Capt., 115-59 219 St., St. Albans, LI.
Gerson, Stanley, Capt., Sea View Hosp., Staten Island.
Gottschalk, Robert B., Capt., Albany Hosp., Albany.
Gozan, Henry A., Capt., 118-01 224th St., St. Albans.
Greenspan, Leon, Capt., 1560 Grand Concourse, Bronx.
Groff, Frederick A. Jr., Capt., 92-45 218 St., Queens Village.
Hall, Cloves T., Major, Union St., Morrisville.
Hamilton, Albert C., Capt., 1616 E. 13th St., Brooklyn.
Healy, Joseph, J., Capt., 593 McDonough St., Brooklyn.
Homokay, Ernest G., Capt., 5 Jackson St., Silver Creek.
Horowitz, Samuel, Capt., 627 State St., Ogdensburg.
Hurley, James W., Capt., 12 Morris Ave., Buffalo.
Ingalls, Stanley S., Major, 28½ S. First St., Fulton.
Ippolito, Thomas L., Capt., 72-16 65th Pl., Glendale, L. I.
Jewett, John F., Capt., 380 Vanderbilt Ave., Brooklyn.
Kaplan, David, Capt., 310 E. Church St., Elmira.
Kapp, Louis A., Major, 1401 University Ave., Bronx.
Keller, Leo, Capt., 267 Beach 130th St., Belle Harbor, LI.
Ketcham, Frederick, Capt., Fishkill.
Krug, Joseph H., Capt., 300 Central Park West, New York.
La Rosa, Frank J., Capt., 63-03 Everton St., Rego Park.
La Tona, Salvatore R., Capt., 552 Third St., Niagara Falls.
Law, Harry C., Capt., 82 Washington St., Cattaraugus.
Mac Dowell, Robert L., 1st Lt., 455 Kenwood Ave., Delmar.
Mackowski, Herbert W., Capt., 361 Chili Ave., Rochester.
Magiday, Morton, Capt., 1150 Grand Concourse, Bronx.
March, T. A., Major, Harlem Valley St. Hosp., Wingdale.
Meiselman, Murray L., 1st Lt., 1672 Ocean Ave., Brooklyn.
Meister, George S., Major, 669 Van Siclen Ave., Brooklyn.
Messina, Joseph C., Capt., 1613 Avenue Z, Brooklyn.
Meyer, Edore, Capt., Attica.
Mills, Roswell S., 1st Lt., East Setauket, L. I.
Moore, David D., Lt. Col., 1215 5th Ave., New York.
Murphy, Louis R., Major, 232 Seymour, Port Chester.
Nelson, Leon G., Capt., 172-90 Highland Ave., Jamaica.
Newman, William H. F., Major, Stamford.
Osher, Norman W., Major, 540 Park Ave., New York.
Otto, James R., 1st Lt., 6 Third Ave., Huntington Station, LI.
Patrizio, Rudolph J., Major, 295 E. 163d St., New York.
Payes, Leon G., Major, 284 Main St., Binghamton.
Pitman, David B., Capt., 25 Mackey Ave., Port Washington.
Rahilly, George T. F., Capt., Brightwaters, Long Island.
Rosenfield, Solomon Z., Major, 570 W. 204 St., New York.
Ross, Francis A., 1st Lt., 101-36 107th St., Richmond Hill.
Satlof, Leo M., Capt., 100 Thayer St., New York.
Schmidt, John G., Lt. Col., 1045 Park Ave., New York.
Schwartz, Marcus, Lt. Col., 91 Sterling Ave., White Plains.
Sharpe, James D., 1st Lt., 1148 Fifth Ave., New York.
Sheeran, James D., Capt., 219 76th St., Brooklyn.
Shulman, Harold C., Major, 21 Genesee St., Binghampton.
Silverman, Samuel, Capt., 812 Riverside Dr., New York.
Smith, Joseph, Capt., 301 Warren St., Hudson.
Snow, Herman B., Major, 425 Robinson St., Binghampton.
Spitz, Samuel H., Lt. Col., 237 E. 20th St., New York.
Squadrito, John J., Capt., 533 Fifth Ave., Troy.
Standish, Philip M., Capt., 117 N. Main St., Canandaigua.
Steward, Clayton M., Capt., 64 Cortland St., Norwich.
Stibbs, Henry W. B., Major, 57 Marion Ave., Poughkeepsie.
Stonehill, Alfred A., Capt., 32-50 93d St., Jackson Heights.
Sussman, Ralph D., 1st Lt., Willard Parker Hosp., New York.
Teitelbaum, Michael H., Lt. Col., 55 Pennsylvania, Mt. Vernon.
Tella, Rocco A., Capt., 43-15 46th St., Sunnyside, Long Island.
Thom, Charles H. Jr., Capt., 34 Ward Ave., Staten Island.
Turner, Hyman, Major, 224 Highland Blvd., Brooklyn.
Vicens, Christobal A., Capt., 565 W. 144th St., New York.
Waldman, Milton H., Capt., 6310 21st Ave., Brooklyn.
Warner, Allan H., Major, 43-02 60th St., Woodside.
Weinbaum, Samuel, Capt., 2992 Bedford Ave., Brooklyn.
Weinstein, Edwin A., Major, 1049 Park Ave., New York.
Weinstein, Vernon A., Capt., 165 E. 95th St., New York.
Weiss, Frank, Capt., 2907 Kingsbridge Ter., Bronx.
Weitz, Henry A., Major, 1255 Eggert Rd., Eggertsville.
Worboys, Carl S., Capt., Mexico.
Ziegler, Hrolfe R., Col., 245 Alexander St., Rochester.

North Dakota

Cook, Paul T., Capt., Valley City.
Henderson, Robert W., Major, 405½ Broadway, Bismarck.
Herman, Lester R., Major, 406 Eddy Ct., Fargo.
Holbrook, Joseph S., Capt., Statesville.
McCannel, Malcolm A., Capt., Minot.
Weible, Ralph D., Capt., 1217 7th St., Fargo.

PHYSICIANS SEPARATED FROM SERVICE

Ohio

Barker, Myron J., 1st. Lt., 209 S. Cole St., Lima.
Baurichter, F. X. L., Capt., Devils Backbone Rd., Cincinnati.
Bennett, Kenneth E., Capt., 302 N. Wooster Ave., Strasburg.
Bill, Herbert E., Lt. Col., 3392 Silsby Rd., Cleveland.
Brown, Russell N., Capt., W. Franklin St., Centerville.
Docter, Luebert, Capt., Genoa.
Duckwall, Henry M., Capt., 637 Troy St., Dayton.
Fasoldt, Laurence O., Capt., Greenville Ave., Glendale.
Fowler, Murray N., Major, 440 Stewart Lane, Mansfield.
Franz, Lyle C., Capt., Ripley.
Goodman, David H., Capt., 852 Linn Dr., Cleveland.
Goodman, Lawrence H., Lt. Col., 110 W. Main Cross, Finlay.
Goodman, William E., Capt., 177 Porter St. N.E., Warren.
Hauman, Hazen L., Major, 316 Michigan, Toledo.
Hibbs, Ralph E., Major, Euclid & 93d, Cleveland.
Howard, Kenneth R., Major, 2702 Inwood Dr., Toledo.
Hunter, George G., Major, 120 S. 4th St., Ironton.
Jansen, Joseph H., 1st Lt., 506 Mentoln Ave., Cincinnati.
Kalaman, Francis J., Major, 2846 E. 120th St., Cleveland.
Kirkbride Willis J., Major, 2723 Monroe St., Toledo.
Kolb, George C., Capt., RR 11, Mt. Healthy.
Kronenberg, Sanford, Capt., 21 Indiana Ave., Youngstown.
Krush, Thaddeus P., Capt., 7410 Lorain Ave., Cleveland.
Lame, Louis A., Capt., 14887 Kinsman Ave., Cleveland.
Lepsky, Harry O., Capt., 4505 Perth Lane, Cincinnati.
Longacre, Jacob J., Major, 3460 Oxford Terrace, Cincinnati.
McConkey, Auren W., Capt., 134 34th St. N.W., Canton.
Mastropaolo, Anthony J., Capt., Main St., Batavia.
Mayfield, Frank H., Lt. Col., 3543 Raymar Blvd., Cincinnati.
Miller, Thomas E., Capt., 721 Park Ave., Ironton.
Mitchell, William F., Capt., 21 E. State St., Columbus.
Oxley, Charles M., Capt., 3301 Lookout Circle, Cincinnati.
Palmer, Erroll P. Jr., Major, 611 Professional Blvd., Cincinnati.
Parker, George J., 1st Lt., 779 W. State St., Columbus.
Pearlman, Albert H., Capt., 502 Doctors Bldg., Cincinnati.
Price, Walter S., Lt. Col., 55 Popular St., Phillipsburg.
Reiheld, Robert E., Capt., 120 S. Jefferson St., Loudonville.
Reno, Edward C., Major, 800 18th St. N.W., Canton.
Ringelman, Norbert P., Capt., Cincinnati G. H., Cincinnati.
Rowe, Peter, Lt. Col., 1906 Forestview Dr., Cleveland Heights.
Schwartz, Abe L., Capt., Box 270 Ohio Pike, Cincinnati.
Simpson, Alexander M., Capt., 4083 Princeton Blvd., S. Euclid.
Smith, George R., Major, 17 E. Erie St., Painesville.
Smith, John W., Capt., Grand Rapids.
Snyder, Warren G., Capt., 723 Oakmont Ave., Steubenville.
Stewart, James V., Capt., 1015 Stratford Ave., Massillon.
Stickley, Louis P., Capt., 19 W. 8th St., Cincinnati.
Strance, John G., Capt., Wyoming.
Weil, Alvin M., Major, 573 Moreley Ave., Akron.
Williamson, Harold A., Capt., 335 Park Ave., Dent.
Wills, Benjamin F., Major, N. Market St., McArthur.
Woldman, Edward E., Lt. Col., 1940 Belvoir Blvd., S. Euclid.

Pennsylvania

Abbott, Albert J., Major, 100 E. Main St., Nanticoke.
Adams, Harry A., Major, 115 Carlisle St., Hanover.
Albright, Chester H. Jr., Lt. Col., Main St., Harleyville.
Beloff, Harry, Capt., 844 Ritner St., Philadelphia.
Black, H. Alexander Jr., Capt., 909 Franklin Ave., Aliquippa.
Cantey, William C., Major, Montgomery Court Apt., Narberth.
Converse, James M., Major, 366 Broad St., Montoursville.
Crosby, William R., 1st Lt., 3412 Old York Rd., Philadelphia.
Deaterly, Charles F., Major, 320 Franklin St., Quakertown.
Douds, Harry E., Major, 1208 8th Ave., Beaver Falls.
Enyeart, Harvey F., Capt., 6007 Center Ave., Pittsburgh.
Fehr, John U., Capt., 1038 Franklin St., Reading.
Glosser, William E., Capt., 372 N. Front St., Reading.
Gopadze, Illarion I., Capt., 255 S. 17th St., Philadelphia.
Grem, Francis M., Capt., 2113 W. Tioga St., Philadelphia.
Grimes, James T., 1st Lt., 1110 Fillmore St., Philadelphia.
Helzlsouer, Wilbert J., Major, 100 Euclid Ave., Dravosburg.
Herring, Elmer F., Capt., 116 Greenwood Ave., Wyncote.
Hundley, Joseph W. Jr., Lt. Col., 600 Oxford Rd., Bala-Cynwyd.
Jones, Eugene M., Major, 1601 Brinton Ave., North Braddock.
Kaiser, William F. Jr., Major., 2336 N.E. 23d Ave., Portland.
Keveney, John J., Capt., 3726 Spring Garden St., Philadelphia.
Kistler, William S., Capt., 118 Main St., Pennsburg.
Kline, Meyer A., Major, Dalton.
Kopf, Lawrence J., Capt., 1086 Franklin St., Johnstown.
Levin, Herbert J., Capt., RD 1, Belle Vernon.
Livingston, William H., Capt., 201 Julian, Ebensburg.
McLaughlin, W. B., Lt. Col., 1524 Termon N.S., Pittsburgh.
McLenahan, T. M. Jr., Capt., 500 Greenfield Ave., Pittsburgh.
Maguda, Thomas A., Major, 96 Newport St., Alden Station.

Pennsylvania—Continued

Maratta, John W., Capt., 82 Main St., Fair Oaks.
Mering, James H. Jr., Major, 211 Beverly Rd., Mt. Lebanon.
Miller, Kenneth F., Lt. Col., 541 Perry Highway, Pittsburgh.
Miller, Oliver F., Capt., 203 W. Main St., Bloomsburg.
Mobilio, Joseph A., Major, 1442 McKean St., Philadelphia.
Morgan, David W., Major, 1051 Blackridge Rd., Wilkinsburg.
Morris, Charles C. II, Capt., County Line Rd., Villa Nova.
Morris, Edward S., Major, Wyncote.
Musselman, Clyde V., Capt., 205 N. George St., Millersville.
Niebaum, Albert H., Capt., 22 E. Wyomissing Ave., Mohnton.
Notz, Frank R., Capt., 802 S. Webster Ave., Scranton.
Palmer, Delmar R., Major, 226 W. 26th St., Erie.
Parker, Alan P., Lt. Col., Radnor & Fishers Rds., Bryn Mawr.
Perrin, Samuel R., Capt., 2 Heinz Ter., Sharpsburg.
Peterman, James E., Lt. Col., 1237 School St., Indiana.
Pratt, William C., Major, Geisinger Mem. Hosp., Danville.
Pugliese, F. M., Lt. Col., 338 S. Franklin St., Wilkes-Barre.
Ramey, Leonard W., Capt., 105 Colburn Ave., Clarks Summit.
Reed, William L., Capt., Box 177, Rural Valley.
Regan, Joseph J., Major, 440 McKee St., Monessen.
Rote, William A., Major, 1002 Chelton Ave., Pittsburgh.
Rothermel, Earl W., Major, 746 N. 10th St., Reading.
Rugh, J. L. K., Major, Box 176, Bolivar.
Sayen, John J., Capt., 1701 Locust St., Philadelphia.
Seaman, Stephen F., Major, 564 Hillside Ave., Bethlehem.
Simpson, Allen J. Jr., Capt., 1318 Wilson St., McKeesport.
Singmaster, Lawrence, Capt., 177 Summit Lane, Cynwyd.
Smith, Lauren H., Col., 349 Milbank Rd., Bryn Mawr.
Spector, Martin, Capt., 2617 Martha St., Philadelphia.
Spelyng, Walter A., Capt., 2604 N. Main Ave., Scranton.
Stanton, James N. Jr., Major, 6215 5th Ave., Pittsburgh.
Stone, Ralph E., Col., 211 Lincoln Ave., Connellsville.
Straughn, Robert A., 1st Lt., 1234 W. Hilton St., Philadelphia.
Sweitzer, Carl E., Major, 14 S. 3d St., Hamburg.
Tittle, Charles R., Capt., Box 52, Abington.
Waltman, Charles A., Major, 910 Wilkes Barre St., Easton.
Westcott, William I., Capt., 58 E. Court St., Doylestown.
Whitcomb, Luther M., Major, 346 W. South St., Carlisle.
Wilson, Thomas W., Capt., 125 S. High St., Zelienople.

South Carolina

Able, LeGrand G., Major, 849 E. Main St., Spartanburg.
Ashby, Joe M., Capt., Roper Hospital, Charleston.
Buchanan, John C. Jr., Lt. Col., Winnsboro.
Chappell, Buford S., Major., Columbia.
Colquitt, Alfred O. Jr., Lt. Col., General Hosp., Spartanburg.
Dusenberry, James F., Capt., Laurens.
Hook, Marion B., Capt., 129 Harden St., Columbia.
Poole, Lewis R., Capt., Box 236, Easley.
Sanders, Keith F., Capt., PO Box 66, Kingstree.

South Dakota

Auld, Merritt A., Major, Plankington.
Burgess, Roy E., Capt., Gettysburg.
Dickinson, John H., Capt., Canistota.
Studenberg, Joseph E., Capt., Gregory.

Tennessee

Bennett, Basil T., Capt., Trenton.
Burd, Joseph G., Capt., Campbell Clinic, Memphis.
Crutcher, Richard R., Capt., 2001 Hayes St., Nashville.
Dodd, David W., Major, 307 N. Spring St., Murfreesboro.
Dubard, Horton G., Major, 2214 Terrace Ave., Knoxville.
Ferguson, William H., Capt., St. Joseph's Hosp., Memphis.
Foster, Robert H., Lt. Col., Union & Kimbrough St., Memphis.
Gadberry, Eugene W., Capt., 1118 N. 1st St., Nashville.
Herd, Leslie P., Col., 201-2 Arcade Bldg., Elizabethton.
Heuer, Douglas F. Jr., Lt. Col., Sweetwater.
Hubbard, George B., Major, Nashville Gen. Hosp., Nashville.
Humphrey, Tom N., Capt., Selmer.
Hyatt, Herschel H., Lt. Col., Copperhill.
Hyatt, Norman L., 1st Lt., Covington.
Kelsey, Richard F., Major, Collierville.
Kimbrough, Robert C. Jr., Lt. Col., Madisonville.
Landis, Harry Z., Capt., 3173 Givens St., Memphis.
Levinson, Herman, Capt., Pulaski.
McCann, Ezelle, Major, 3195 Spottswood Ave., Memphis.
Martin, Travis H., Lt. Col., Battery Lane, Nashville.
Massengill, James, Capt., 218 W. Main St., Halls.
Moss, John P., Capt., 1155 Radcliffe, Memphis.
Seligman, Ewing, Major, 3415 Murphy Rd., Nashville.
Sullenberger, Samuel D., Capt., Elfin Rd., Lookout Mt.
Tucker, L. S., Capt., Hawkins Co. Health Dept., Rogersville.
Weaver, T. S., 1st Lt., Murfreesboro Rd., Nashville.

PHYSICIANS SEPARATED FROM SERVICE

Texas

Bailey, Stanfill W., Capt., 1149 Santos St., Abilene.
Baird, William L., Capt., Wiergate.
Blake, John V. Jr., Major, Box 294, Floresville.
Bowyer, Mack F., 1st Lt., Parkland Hosp., Dallas.
Boyle, Frank B., Capt., 208 Petroleum Bldg., Big Spring.
Brake, Ira F., Capt., PO Drawer S., San Augustine.
Brown, Brian T., Major, 2210 Dallas St., San Angelo.
Brumage, William S., Capt., Lubbock Sanitarium, Lubbock.
Carlisle, Margil C., Capt., 1410½ Austin Ave., Waco.
Carter, James W., Capt., Missouri Pacific Hosp., Palestine.
Collom, Spencer A. Jr., Major, 3016 Pine, Texarkana.
Colyer, George E., Capt., 306 Clifford St., Corpus Christi.
Cooper, Albert L., Capt., Chapel Hill.
Crenshaw, Allen J., 1st Lt., 3848 Mockinbird Lane, Dallas.
Cull, Herbert G., Major, RFD 4, Box 14, Houston.
Curbo, James R., Capt., 903 N. 11th St., Waco.
Daily, Robert L., Major, 1411 9th St., Wichita Falls.
Delany, John J., Major, 906 22d St., Galveston.
Dowling, Urban J., Capt., 702 E. 12th St., Sweetwater.
Drane, Hugh A. Jr., Capt., W. Second Ave., Corsicana.
Dudgeon, Howard R. Jr., Capt., Professional Bldg., Waco.
Estess, Berthold H., Capt., 3746 Darcus St., Houston.
Faris, Arthur M., Major, 1004 Med. Arts Bldg., Houston.
Fitzwilliam, Clare D., 1st Lt., Smithville.
Gilula, Adolph, Capt., 2906 21st St., Lubbock.
Griffin, L. L., Lt. Col., Pathology Dept., U. of Texas, Galveston.
Halamicek, John F., Capt., Jefferson Davis Hosp., Houston.
Hamilton, Oscar A. Jr., Capt., Richards.
Harris, Joseph B., Capt., Midlothian.
Hart, Gaylord A., Lt. Col., 1327 Med. Arts Bldg., Dallas.
Hayes, Elmer R., Lt. Col., 2827 Jones St., Greenville.
Holmes, Mansell B., Lt. Col., Vet. Hosp., Waco.
Hotchkiss, Hubert L., Capt., 614 W. Owing St., Denison.
Howard, Glenn T., Major, P. O. Box 1040, Bruni.
Hulsey, Simeon H., Col., 2214 Ward Parkway, Fort Worth.
Hunt, Kent N., Capt., 525 E. Mayfield, San Antonio.
Hurn, Robert E., 1st Lt., Route A, Henrietta.
Hutchinson, Benjamin B., Capt., 1519 Broadway, Lubbock.
Jaehne, Robert J., Lt. Col., 2109 Schule Ave., Austin.
Jerabeck, John D., Lt. Col., 1540 Sul Rose St., Houston.
Johnson, Robert H., Capt., Hamlin.
Jones, Dean B., Major, 112 N. 6th St., Kingsville.
Keith, Joseph M., Capt., Lake Worth, Rt. 2, B 270, Ft. Worth.
Klein, Perry B., Capt., St. Joseph's Infirmary, Houston.
Knolle, Ben E., Capt., Industry.
Long, James W., Lt. Col., P. O. Box 127, Port Arthur.
Loveless, Robert W., Major, Lamesa.
McCall, James D., Capt., Williams Clinic, Mineral Wells.
McCarthy, J. E., Capt., 407 E. Mistletoe Ave., San Antonio.
McConchie, Richard D., Major, 1815½ Lucile, Wichita Falls.
McFadden, Candour A., Major, Abilene State Hosp., Abilene.
Mahone, Marion W., Major, Jefferson Davis Hosp., Houston.
Mansur, Harl D. Jr., Major, 1513 S. Main St., Big Springs.
Maxwell, Ernest A., Major, 2412 Vincent St., Brownwood.
May, Lester M., Capt., 431 Paseo Encinal, San Antonio.
Meitzen, Travis C., Capt., 121 S. Brown Ave., Denison.
Merrick, Benjamin A., Capt., Baylor Hosp., Dallas.
Moon, Roy E., Capt., Chandler.
Olcott, Cornelius Jr., Lt. Col., 1217 E. Tyler St., Harlingen.
Osborn, Robert W., Major, Box 208, McAllen.
Owers, Albert, Capt., 1516 N. 7th St., Temple.
Pace, Bedford F., Capt., Box 606, Nederland.
Packard, Duan E., Major, Kerrville.
Peacock, George E., Major, 4632½ Junius St., Dallas.
Phillips, Claurice M., Col., Levelland.
Post, Samuel P. Jr., 1st Lt., Boerne.
Price, Richard O., Capt., Box 671, Kilgore.
Price, Robert L., Capt., 804 Cherry St., Graham.
Quillian, Causey C., Capt., Kenedy.
Reed, Walter E., Capt., 506 Nebraska St., San Juan.
Rhode, William S., Major, 505 Chestnut St., Colorado City.
Rippy, Edwin L., Lt. Col., 3622 Fairmont, Dallas.
Roberts, Charles J., Capt., 511 NW Fourth St., Mineral Wells.
Roberts, Joe H., Major, Jefferson Davis Hosp., Houston.
Rudd, Laurence H., 1st Lt., Burleson.
Seale, William H., Major, 735 Sayles Blvd., Abilene.
Shaver, Benjamin B., Lt. Col., 141 Club Dr., San Antonio.
Sheckles, Loyd W. Jr., Lt. Col., 3824 Ave., P, Galveston.
Smith, Millicent Z., Capt., 1309 Bell St., Wichita Falls.
Smith, William J. B., 1st Lt., 2218 Main St., Lubbock.
Smith, William L., Capt., Box 5213, Sonora.
Sory, Crysup, Major, Freer.
Sparkman, Robert S., Lt. Col., % E. H. Sparkman, Baylor U., Waco.

Texas—Continued

Steckler, Milton I., Lt. Col., 607 Marine Bank Bldg., Houston.
Steger, Joseph H., Col., 3100 Bellaire Dr. W., Ft. Worth.
Stephen, Weldon W., Major, 4525 Ave., N, Galveston.
Stone, Joseph R., Major, 142 Park Hill Dr., San Antonio.
Sweeney, James S., Col., % Dr. H. Walton Cochran, Med. Arts Bldg., Dallas.
Sykes, Edwin M. Jr., Capt., 201 Charles Rd., San Antonio.
Trimble, Orman H., Major, Greenville.
Tyler, Monroe R., Major, 1802 McCullough, San Antonio.
Vaughan, Luther M., Lt. Col., 704 Dallas Ave., Houston.
Walker, Newton F., Major, 403 1st Nat. Bank Bldg. El Paso.
Watkins, Walter P., Major, Luling.
West, Robert C., Lt. Col., N. Gentry & Rice, Hamilton.
White, Byrd E. Jr., Capt., 4930 Swiss Ave., Dallas.
Williamson, Thomas J., Capt., Box 205, Eldorado.
Zionts, Martin A., Capt., 5104 Caroline St., Houston.

Utah

Clark, Riley G., Capt., 261 N. University Ave., Provo.
Hetzel, Clarence C. Jr., Major, 2548 Jackson Ave., Ogden.
Jorgensen, Cecil L., Capt., 2528 Harrison Blvd., Ogden.
Noall, Wendell, Major, 385 24th St., Ogden.
Rich, Junior E., Lt. Col., 1453 Marilyn Dr., Ogden.

Vermont

Abajian, John Jr., Major, Burlington.
Calcagni, Oscar H., Major, Lower Main St., Morrisville.
Magner, John P., Capt., 51 Prospect St., Rutland.
O'Neil, James P., Capt., 131 Bank St., Burlington.
Powers, Michael F., Lt. Col., 47 Atkinson St., Bellows Falls.
Pratt, Henry L., Capt., 24 Pine St., Rutland.
Waterman, William M., Capt., 14 Pine St., Windsor.

West Virginia

Bandi, Robert T., Capt., 2320 Eoff St., Wheeling.
Butterfield, Donald L., Capt., Ft. Hill Dr., RD 2, Charleston.
Calvert, Robert L., Capt., Maple Apts., Huntington.
Dodson, Ross, Capt., 134 9th Ave., West Huntington.
Hedrick, Grover C. Jr., Capt., 1545 Harper Rd., Beckley.
McCann, Harold F., Capt., 137 Jackson Ave., Clarksburg.
Main, Emory H., Capt., Philippi.
O'Dell, Richard N., 1st Lt., Box 949, Belle.
Pace, Lawrence J., Capt., 112 Circle Dr., Princeton.
Quick, James C., Capt., Box 416, Clendenin.
Statts, Charles E., Capt., 210 Wyoming St., Charleston.
Whelan, Joseph D., Major, Wheeling.

Wyoming

Batterton, Robert V., Col., 10 Osborne Bldg., Rawlins.
Burich, Fred T., Capt., 209 Grand Ave., Laramie.
Mitchell, Henry S., Major, Vet. Adm. Facility, Sheridan.
Pennoyer, Willard H., Major, 2020 Carey Ave., Cheyenne.
Plummer, Orlay E., Major, 118 E. Pine St., Rawlins.

Puerto Rico

Diez-Gutierrez, Emilio, Capt., Orocovis.
Martinez, Hector A., Major 52 Park St., Santurce.
Robert, Jose L., Capt., 252 Ponce de Leon Ave., Santurce.
Sanjurjo, Luis A., Major, McCormick Ave. No. 1, Hato Rey.

CHANGES.

Boykin, James M., Lt. Col., Taft, Texas. Reported on list 10-19-45. Recalled to active duty with Vet. Adm.

Liberman, David L., Major, Vet. Adm. Facility, Wood, Wis. Reported on list 12-28-45. Was not relieved from active duty.

Lowenstein, Bernard, Major, Tacoma Indian Sanat., Tacoma, Wash. Reported on list 12-21-45. Recalled to duty with Vet. Adm.

McCann, Ezelle, Major, 3195 Spottswood Ave., Memphis, Tenn. Reported on list 12-28-45. Was not relieved from active duty.

McCormick, Charles O., 1st Lt., 4041 Washington Blvd., Indianapolis, Ind. Reported on list 10-19-45. Was not relieved from active duty.

Munns, Thomas A., Major, RFD 1, Oxford, Ohio. Reported on list 12-21-45. Recalled to active duty with Vet. Adm.

Skelley, Leo C., Major, 2226 N.W. Hoyt St., Portland Oregon. Reported on list 11-30-45. Recalled to active duty with Vet. Adm.

MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

Alabama

Eichold, Samuel.....Mobile
Frazer, Emmett B.....Mobile
Grayson, Richard J.....Selma
O'Gwynn, John C., Jr.....Mobile
Woods, Arthur W.....Birmingham

Arizona

Condon, Daniel J.....Phoenix
Haines, Ronald S.....Phoenix
Hicks, Robert A.....Tucson
Lentz, Joseph S.....Phoenix
Kelley, Orville R.....Phoenix
Smith, William J.....Phoenix
Storts, Brick P., Jr.....Tucson
Williams, Henry G.....Phoenix

Arkansas

Beasley, Joseph E.....Blytheville
Higgins, Homer A.....Little Rock
Price, Thomas G.....Wynne
Rainwater, Elmer H.....Little Rock
Raley, Burch V.....Little Rock
Shipp, David H.....Little Rock
Wharton, Joseph B., Jr.....El Dorado

California

Achenbach, Louis W.....Ventura
Adams, John E.....Piedmont
Allegrini, Anthony E.....Santa Cruz
Allington, Herman V.....Oakland
Anderson, Emory H.....Oakland
Anderson, Frank R.....Campbell
Awtrey, Hugh H.....San Francisco
Barber, Philip S.....Porterville
Barmore, Merrill G.....Whittier
Berger, Adolphus A.....San Francisco
Bishop, Harry A.....Bakersfield
Bissell, Arthur D.....Santa Barbara
Boggs, Robert W.....St. Helena
Boylan, Richard N.....Riverside
Browning, George L.....Sacramento
Budd, John W.....Los Angeles
Burke, George T.....San Marino
Caruso, Tenero D.....Los Angeles
Cassell, Irving.....San Jose
Chapman, James L.....Los Angeles
Childress, Max E.....San Francisco
Coates, Gaines L.....Martinez
Copeland, Edwin K.....Woodland
Crank, Henry H.....Oakland
Cullen, Edward R.....Long Beach
Daniels, Arthur G., Jr.....South Gate
Day, Proctor W.....Berkeley
Delphey, William E.....San Marino
Dickson, James D.....Santa Monica
Dietderich, Clifford E.....Crockett
Doane, Clarmont P.....Fresno
Due, Floyd O.....Alameda
Duggan, Willia T.....San Francisco
Dunbar, William V...Sunnyside Terrace
Easley, Clifford E.....Torrance
Elerding, George W.....Los Angeles
Ellik, Milo.....Long Beach
Fabian, John P.....Chico
Fletcher, Charles D.....San Francisco
Fox, Leon P.....San Jose
Fricke, John W.....San Francisco
Gaede, Menno S.....Reedley
Garfield, F. Edwyn.....San Francisco
Garrett, Robert L.....San Francisco
Gasteiger, Ernest S.....Los Angeles
Gazzaniga, Dante A.....Glendale
Gilman, Carl J.....Vallejo
Gurdin, Michael M.....Hollywood
Hannebaum, Otto P.....Los Angeles
Harrington, David O.....San Francisco
Harsh, George F.....San Diego
Hartman, Joyce I.....Palo Alto
Harwood, Chadron M.....Santa Ana
Hause, Edward E.....San Francisco
Henderson, Wayne B.....San Diego

California—Continued

Hensler, Harry N.....Ross
Hogan, Michael J.....San Francisco
Holm, Bernard S.....San Francisco
Hromadka, John B.....Santa Monica
Humphrey, Wendell H.....Piedmont
Hunt, William R.....Santa Barbara
Jensen, Herman H.....Oakland
Jensen, Oliver B.....Livermore
Johnston, William R.....Santa Barbara
Josephs, Irving L.....Los Angeles
Kaftan, Ludwig L.....Los Angeles
Kellogg, Pearson C.....Sacramento
Kennedy, George R.....Pasadena
King, Ralph M.....La Mesa
Lachman, George S.....San Francisco
Laird, Terry T.....San Anselino
Lawry, Edwin V.....Palo Alto
Leake, William H.....Beverly Hills
Loughlin, Edward L.....Frazier Park
Lyons, Harold M.....San Francisco
Lytle, Howard W.....Gilroy
MacCracken, William B.....Berkeley
McDermott, Alza M.....Hollywood
McKinley, Elmer M.....San Luis Obispo
McNamara, Thaddeus M.....Bakersfield
Mahon, Edmund J.....San Francisco
Mainwaring, George F.....Orinda
Maurer, Robert D.....Tracy
Melkonian, Leon.....Gilroy
Merchant, Edward B., Jr.....Pasadena
Miller, Alden H.....Los Angeles
Morris, Raymond L.....San Francisco
Morrison, Gordon M.....San Mateo
Murphy, William R.....Sacramento
Nay, Newell.....San Luis Obispo
Newman, William W.....San Francisco
Ohanneson, John.....Alameda
Olds, John W.....San Diego
Paine, Norman C.....Glendale
Parker, Fenton.....Oakland
Person, Edward C.....San Diego
Petrilli, Alexander.....San Francisco
Pletta, Frederick A.....Berkely
Quigley, John S.....Piedmont
Rahn, Paul C.....San Leandro
Rambo, William H.....Los Angeles
Rees, Charles W.....San Diego
Rixford, Emmet L.....San Francisco
Ross, Rex L., Jr.....Belair, Los Angeles
Rover, Henry P.....Long Beach
Rumph, Paul E.....Orange
Ryan, Clark D.....Los Angeles
Saverien, Arnold E.....Los Angeles
Sbarbaro, Victor E.....Oakland
Scott, Raymond R.....Selma
Searls, Henry H.....San Francisco
Sheehan, William J.....Santa Barbara
Sideman, Sidney.....Los Angeles
Singleton, Paul C. A.....San Francisco
Smith, Lawrence E.....Merced
Smith, Seymour P.....San Francisco
Spitalny, Gus.....San Francisco
Stufflbam, Henry M.....Salinas
Stufflebam, Henry M.....Salinas
Sumerlin, Harold S.....San Diego
Swasey, Lloyd K.....San Diego
Thebaut, William M., Jr.....Oakland
Thomas, Joseph W.....San Diego
Truax, Harmon D.....Alhambra
Vedder, James S.....San Diego
Vidricksen, Harry L.....Weed
Von Christierson, Sigurd.....Salinas
Wagner, Vincent E.....San Dimas
Wagner, William F.....San Francisco
Welbourn, Leland S.....Van Nuys
Whalen, Thaddeus J.....San Francisco
Wilson, John C.....San Jose
Wood, John A.....Anaheim
Woodworth, Philip R.....Sierra Madre
Wright, Kenneth D.....Santa Monica
Zieber, Roscoe L.....Santa Rosa

Colorado

Bennett, Everett E.....Grand Junction
Caldwell, Calvin N.....Pueblo
Crouch, Winthrop B...Colorado Springs
Noonan, Richard L.....Walsenburg
Singer, David.....Denver
Tanner, Gordon W.....Denver
Weinstein, Sidney S.....Denver

Connecticut

Bates, Davis H.....Woodstock
Beauchemin, Joseph A.....Middletown
Bingham, Charles T.....West Hartford
Bloom, David I.....Thompsonville
Cullen, James R.....Hartford
Dorian, Robinson H.....Stamford
Fenney, Philip W.....New Haven
Gibson, Donald F.....Danbury
Giuffrida, Francis.....Meriden
Gulash, John R.....Bridgeport
Hertzberg, Reinhold F.....Stamford
Leonard, Robert J.....Hartford
Lindskog, Gustaf E.....New Haven
McLellan, Philip G.....W. Hartford
McMahon, George W.....New Britain
Mahoney, Patrick J.....Norwich
Miller, Hugh K.....Stamford
Nespor, Robert W.....Westport
O'Connell, William M.....West Haven
O'Connor, Dennis S.....New Haven
Rentsch, Samuel B.....Derby
Schmidt, Norman L.....Stamford
Shulman, David N.....Hartford
Smith, Edward R.....Meriden
Taylor, Hoyt C.....Norwich
Thompson, Sidney A.....Greenwich
Trapp, Francis W.....Southington
Twachtman, Eric.....New Canaan
Weigle, Luther A., Jr.....W. Hartford
Wells, John B.....Hartford
Wilson, William A.....West Hartford
Wilson, William R.....Ansonia
Wray, Edward H., Jr.....Litchfield

District of Columbia

Cavanaugh, John R.....Washington
Chinn, Raymond F.....Washington
Cleveland, William H.....Washington
Hawken, Stafford W.....Washington
Hoffman, Herman S.....Washington
Hummel, Merwin L.....Washington
Mirick, George S.....Washington
Mitchell, Reginald H.....Washington
Pagan, Albert E.....Washington
Sager, William W.....Washington
Sandler, Isadore L.....Washington
Wildebush, Frank F.....Washington

Florida

Allan, Harry L., Jr.....Fort Myers
Baldwin, Donald M.....Jacksonville
Boles, Arthur E.....Miami
Bowen, Frederick H.....Jacksonville
Clark, Irving T.....Chattahoochee
Coplan, Milton M.....Miami
Hixon, William P.....Pensacola
Jewett, Eugene L.....Maitland
Jones, Carroll B.....New Smyrna Beach
Kells, Paul.....Miami
Kuckku, Morris E.....Miami
Leonard, George N.....Miami Beach
Lipscomb, Thomas H.....Jacksonville
Lupmkin, Lloyd U.....Fort Lauderdale
McNeill, Clyde.....Pensacola
Oliver, Robert M.....Miami
Quillian, Warren W.....Coral Gables
Rutter, Joseph H.....Dayton Beach
Taylor, Byrne E.....Orlando
Turner, Arthur F., Jr.....Jacksonville
Widmeyer, Robert S.....Petersburg
Woods, Frank M.....Miami
Wylie, LeRoy A.....St. Petersburg

MEDICAL OFFICERS RELEASED BY THE NAVY

Georgia

Allen, Charles E.....Atlanta
Allgood, Jackson L., Jr.....Atlanta
Dallas, Robert E.....Thomaston
Davis, Robert C.....Atlanta
Dorough, Warren S.....Atlanta
Harris, Herschel B.....Athens
Hitchcock, John P.....Atlanta
Jardine, Dan A.....Douglas
Jernigan, Henry W.....Atlanta
Johnson, Roy J., Jr.....Atlanta
McCoy, John F.....Atlanta
Murray, Samuel D.....Atlanta
Sanders, Atticus S.....Atlanta
Walker, Exum B.....Atlanta

Illinois

Addenbrooke, Edward F.....Winnetka
Alden, Herbert S.....Chicago
Ball, Wilbur G.....Bloomington
Bartelson, Raymond E.....Chicago
Baxter, Raymond E.....Bloomington
Behrens, William H.....Belleville
Benjamin, Eustace L.....Evanston
Bothe, Russell T.....Aurora
Boyd, John R.....Oak Park
Caddick, Richard P.....Quincy
Conlev, Thomas J.....Chicago
Copeland, William J.....Cary
Crawford, Ray F.....Chicago
Danahy, John C.....Highland Park
Deplewski, Leo M.....Chicago
Diffenderfer, Ralph E.....Blue Island
Edwards, Robert W.....La Grange
Engelbach, Hermann F.....Jacksonville
Finkelman, Isadore.....Chicago
Friedman, Townsend B.....Chicago
Jacobson, Max M.....Chicago
Kahler, Maurice V.....Chicago
Kaske, Gordon J.....Belvidere
Kruckenberg, William G.....Elgin
Kullman, Paul J.....Chicago
Harris, Leonard H.....Chicago
Irwin, Francis G.....Decatur
Langdon, Roy M.....Chicago
Lenth, Vincent T. J.....Jacksonville
Lorance, Luther M.....Chicago
McCullough, Clifford P.....Lake Forest
McGuigan, Robert A.....Evanston
McVety, Thomas W.....Decatur
Malcolm, William A.....Peoria
Milles, George.....Oak Park
Morris, Louis C.....Chicago
Mosny, Emil K.....Charles
Newcomb, Alvah L.....Wilmette
Olson, Franklin A.....Chicago
Overby, Rudolph W.....Chicago
Perlow, Samuel.....Chicago
Poliak Percy P.....Chicago
Renz, Theodore H.....Chicago
Roberts, Joseph M.....Watseka
Shapiro, Irving J.....Chicago
Sharrer, Gerald L.....Aurora
Sloan, Howard P.....Bloomington
Smith, Kenneth J.....Blue Island
Solomon, Samuel Jr.....Chicago
Stanbery, George A.....Vandalia
Stimson, Horace P.....Chicago
Sullivan, Samuel J.....Chicago
Theis, Frank V.....Chicago
Thelen, Leo L.....Elgin
Van Verst, Paul H.....River Forest
Vermeren, John C.....Evansville
Wall, John W.....Chicago

Indiana

Appel, Richard H.....Indianapolis
Ayres, Wendell W.....Hartford City
Buchanan, Wallace D.....Bremen
Clements, Albert F.....Evansville
Cullen, Paul K.....Indianapolis
Day, William D. C.....Seymour
De Motte, Russell A.....Bloomington
Donovan, Stephen J.....Michigan City
Drake, John C.....Anderson

Indiana—Continued

Dyar, Edwin W., Jr.....Indianapolis
Flack, Russell A.....Lafayette
Hawk, James H.....Indianapolis
Hill, Robert P.....Bloomington
Hoopes, Benjamin F.....Bloomington
Lamey, Paul T.....Anderson
Litzenberger, Sam W.....Anderson
MacKenzie, Pierce.....Evansville
Morrison, David "A".....Kokomo
Need, Louis T.....Indianapolis
Phares, Robert W.....Muncie
Phillips, John R.....Michigan City
Roser, Arthur J.....Fort Wayne
Rubin, Gerald S.....Indianapolis
Spangler, Jesse S.....Kokomo
Stamper, Joseph H.....Middletown
Stangle, William J.....Mooresville
Stier, Paul L.....Fort Wayne
Stoeffler, Walter.....Indianapolis
Walker, Robert K.....Indianapolis

Iowa

Andersen, Bruce V.....Greene
Burroughs, Hubert H.....Sioux City
Butts, John H.....Waterloo
Clark, George H.....Oskaloosa
Cooper, Clark N.....Waterloo
Cross, Donald L.....Coon Rapids
Crossley, James L.....Waterloo
Decker, Henry G.....Des Moines
Elmquist, Homer S.....Iowa City
Frank, Louis J.....Sioux City
Greenlee, Max R.....Oskaloosa
Harris, Dallas D.....Des Moines
Havlik, Aloysius J.....Tama
Heise, Carl A., Jr.....Missouri Valley
Jones, Clare C.....Spencer
Kelley, Edmund J.....Des Moines
Kieck, Ernest G.....Cedar Rapids
Kluever, Herman C.....Fort Dodge
Knight, Russell A.....Rockford
Kulowski, Jacob.....Iowa City
Larsen, Harold T.....Fort Dodge
Larson, Lester E.....Decorah
Lenaghen, Robert T.....Clinton
Lovejoy, Elijah P.....Des Moines
McFarland, Julian E.....Ames
McNamee, Jesse H.....Des Moines
Marble, Edwin J.....Marshalltown
Miller, Oscar H.....Estherville
Miner, James B., Jr.....Charles City
Nelson, Carrol C.....Red Oak
Netolicky, Robert Y.....Cedar Rapids
Olson, Paul F.....Dubuque
Parish, John R.....Grinnell
Patterson, Roy Ad.....Webster City
Powell, Lester D.....Des Moines
Proctor, Rothwell D.....Cedar Rapids
Rankin, John R.....Keokuk
Smith, Herman J.....Des Moines
Sperow, Wendell B.....Nevada
Treynor, Jack V.....Council Bluffs
Williams, Robert L.....Lakota

Kentucky

Black, Sam H.....Lebanon
Buskirk, Joseph R.....Louisville
Campbell, John D.....Louisville
Clark, Garland H.....Winchester
Coleman, Robert M.....Frankfort
Combs, Arnold B.....Lexington
Costigan, Daniel G.....Louisville
Doughty, Richard E.....Louisville
Edelen, Charles M.....Louisville
Hemphill, Stuart P.....Danville
Hurst, Arthur T.....Louisville
Newman, John S.....Somerset
Paris, Samuel E.....Brownsville
Scott, Thornton.....Lexington
Strode, Robert E.....Winchester
Toomey, Lawrence O.....Bowling Green
Townsend, John Mc.....Louisville
Walsh, Maurice R. F.....Covington
Weber, Melvin J.....Ludlow

Louisiana

Brierre, Joseph T.....New Orleans
Bounds, Lemann H.....New Orleans
Cook, William H.....Baton Rouge
Crawley, Robert J.....New Orleans
Fershtand, John A. B.....Tallulah
Glass, Thomas A., Jr.....Shreveport
Goldfarb, Paul M.....New Orleans
Houston, Arthur N.....New Orleans
Hume, Charles R.....New Orleans
Pargen, Thomas H.....Baton Rouge
Renken, Paul W.....New Orleans
Small, Milton B.....Kentwood
Smith, Earl C.....New Orleans
Street, Richard M.....Slidell
Witter, Howard B.....Baton Rouge

Maine

Cobb, Norman E.....Calais
Drake, Eugene H.....Portland
Hoyle, Christian K. C.....Kittery
Lathbury, Vincent T.....Augusta
Nesbitt, Lester R.....Bucksport

Maryland

Case, Jarvis D.....Bethesda
Christensen, Thomas A.....College Park
Conley, Charles H., Jr.....Frederick
Davidson, Nachman.....Baltimore
Franz, John H.....Baltimore
Gibb, William T., Jr.....Kensington
Goldberg, Herman K.....Baltimore
Johnson, Marion W.....Salisbury
Maumenee, Alfred E.....Baltimore
Newman, Alpheus C., Jr.....Easton
Parsons, John W.....Baltimore
Pessagno, Daniel J.....Baltimore
Peters, Erwin E.....Baltimore
Raffel, William.....Baltimore
Reisinger, John A.....Chevy Chase
Reynolds, Frank W.....Baltimore
Smith, Frank R., Jr.....Salisbury
Strauss, Clifton J.....Hyattsville
Whaley, Thomas B.....Princess Anne
Zinberg, Israel S.....Baltimore

Massachusetts

Allen, Edward C.....Melrose
Bernier, Leo J.....Holyoke
Boisseau, David W., Jr.....Boston
Butts, John B.....Worcester
Carleton, William T.....Worcester
Carr, William M.....Whiteman
Cordes, Warren P.....Northampton
Crandon, John H.....Boston
Daniels, James T., Jr.....Brookline
Elia, Andrew D.....Boston
Flanagan, Norris B.....Squantum
Freedman, Solomon S.....Lowell
Gardner, Stuart N.....Salem
Gilbert, Henry R.....Needham
Glickman, Alfred M.....Springfield
Goldblatt, Harold W.....Lawrence
Golden, Sherman E.....Beverly
Hagan, Newell S.....Canton
Hawkey, Alfred S.....Newton
Holt, William L., Jr.....Westboro
Hood, Wilfred T.....Brighton
Hoover, Harold R.....Boston
Hulse, Herbert J.....Rockland
Hunter, Francis T.....Chestnut Hill
Jacobson, Bernard M.....Newtonville
Kane, Theodore J.....Everett
Kevorkian, Albert Y.....Chestnut Hills
Lanigan, William N.....Medford
La Palme, Joseph A.....Webster
McCarthy, Lawrence J.....Worcester
McCarthy, Thomas F.....Lowell
Miles, George S.....Somerville
Monks, John P.....Lincoln
Montag, Paul P.....Worcester
Ockert, Raymond G.....Mansfield
Piper, Frank J.....Framingham
Richards, Lyman G.....Wellesley Hill
Ryan, Earl F.....Maynard

MEDICAL OFFICERS RELEASED BY THE NAVY

Massachusetts—Continued

Scelso, Salvatore....Boston
Scarcello, Nicholas S....Worcester
Shaw, Elmer A....Brockton
Stein, Calvert....Springfield
Sturgis, George P....Brookline
Swan, Channing S....Weston
Thornton, Joseph P....Dorchester
Tourney, James W....Dedham,
Vance, Lewis A....Wellesley Hills
White, Edward P....Dorchester
Worcester, John....Brookline
Yandell, Hays R....Princeton

Michigan

Ackerman, Gerald L....Saginaw
Amos, Norman H....Battle Creek
Berman, Sidney....Detroit
Bernel, John M....Detroit
Biggar, Robert J....Port Huron
Bryce, John D....Detroit
Capron, Manley J....Battle Creek
Conti, Joseph B....Petoskey
Defever, Cyril R....Detroit
Drewyer, Glenn E....Flint
Dwyer, Francis W....Detroit
Fremont, Joseph C....Detroit
Gillard, James L....Muskegon
Kozlinski, Anthony E....Detroit
Kullman, Harold J. F....Detroit
Lambert, Warren Charles....Marquette
Le Duc, Don M....East Lansing
McIntyre, Charles H....Kalamazoo
MacPhail, Joseph C....Bay City
Miller, J. Duane....Grand Rapids
Oldham, Earle S....Detroit
Osius, Eugene....Detroit
Rice, John W....Sturgis
Rogers, Thurman M....Jackson
Russell, Vincent P....Pleasant Ridge
Sander, John F....E. Lansing
Sawyer, Walter W....Hillsdale
Sheldon, Suel A....Saginaw
Slagle, George W....Battle Creek
Stucker, Fred J....Bangor
Tamblyn, Frederick W....Lansing
Tiedke, Gunther E....Saginaw
Vary, Edwin P....Flint
Watson, Thomas Y....Birmingham
Webber, Jerome E....Grand Rapids

Minnesota

Arlander, Clarence E....Minneapolis
Buchstein, Harold F....Minneapolis
Butzer, John A....Mankato
Cain, Clark L....St. Paul
Camp, John D....Rochester
Christopherson, Joseph E....Virginia
Clark, Daniel M....Brainerd
Cochrane, Ray F....Minneapolis
Duff, Edwin R....Minneapolis
Fellows, Manley F....Duluth
Giesen, Allan F....Starbuck
Gouze, Frank J....Duluth
Gowan, Lawrence R....Duluth
Gray, Howard K....Rochester
Hammerstad, Lyn M....Minneapolis
Johnson, Harry A....Edina
Johnson, Karl E....Duluth
Kent, Richard N....Rochester
Lauer, Dolor J....St. Paul
McCarthy, Donald....Minneapolis
MacKinnon, Donald C....Minneapolis
MacLean, Alexander R....Rochester
Ogden, Warner....St. Paul
Olson, Chester J....Belle Plain
Patterson, Hugh D....Anoka
Roemer, Henry J....Winona
Samson, Emmett R....Stillwater
Swenson, Arnold O....Duluth
Walters, Waltman, Mayo Clinic Rochester
Watson, Sidney W....Royalton
Wells, Walter B....Jackson
Widen, Wilford F....Hopkins
Wilson, John A....St. Paul

Mississippi

Blaine, James G....Jackson
Brown, Arthur E....Columbus
Criss, Ralph J., Jr....Coffeeville
Flynt, Roger M....Meridian
Hand, William F....Jackson
Klaus, A. Walden....Greenville
Levy, Louis K., Jr....Canton
McClanahan, Hick H., Jr....Columbus
Stowers, William K....Natchez
Wilson, Thomas E....Jackson
Woodruff, Paden A....Gulfport

Missouri

Bagby, James W....University City
Bassett, Robert B....St. Louis
Beal, Homer A....Kansas City
Benjamin, Durand....St. Louis
Brown, Seymour....St. Louis
Buhler, Victor B....Kansas City
Comboy, Lawrence J....Independence
Diehr, Maurice A....St. Louis
Dorsey, John W....Kansas City
Gaines, Quentin M....Kirkwood
Grantham, Samuel A., Jr....Joplin
Hardy, Guerdan....St. Louis
Johnson, Richard E....Kansas City
Jostes, Frederick A....Florissant
Landau, Daniel B....Hannibal
Langhus, Melvin O....Kansas City
MacNish, James M....Webster Grove
Marmor, William A....Clayton
May, James W....Kansas City
Meador, James R....Clayton
Mistachkin, Norman L....Univ. City
O'Neill, James R....Kansas City
Pardoll, Davis H....Poplar Bluff
Powers, William L....St. Louis
Robinson, Ernest K....Kansas City
Robinson, George W., Jr....Kansas City
Roche, Maurice B....St. Louis
Ryan, Maurice J....Kansas City
Schaerrer, William C....Kansas City
Schutz, Richard B....Kansas City
Staehle, Melvin E....St. Louis
Taylor, Leon A....Jefferson City
Walker, Paul W....Joplin
Weber, William K....Normandy
Willhelmy, Ellis W....Kansas City
Ziegler, Allen M....Kansas City

Montana

Hale, Donald E....Butte

Nebraska

Arnsten, Lester L....Omaha
Gibson, Luther V....Lincoln
Gray, Richard W....Lincoln
Klok, George J....Omaha
Martin, Samuel F....Lincoln
O'Brien, Donald J....Omaha
Redgwick, John P....Omaha
Royal, Paul A....Lincoln
Smith, Thomas T....Omaha
Stewart, Frank A....Edgar
Wengert, Darwin B....Fremont
Wright, Willis D....Omaha

New Hampshire

Harrington, Walter J....Manchester
Miller, Gerard R....Loconia
Munro, Burton S....Berlin
Murphy, Richard L....Manchester
Olmstead, Shirley H....Plymouth
Robertson, Norris H....Keene
Sullivan, Daniel J....Nashua

New Jersey

Anderson, William A....Bloomfield
Barnard, Frank G....Montclair
Barnshaw, Harold D....Merchantville
Benjamin, Joseph F....Ridgewood
Blaisdell, Charles B....Long Branch

New Jersey—Continued

Brown, Stanley L....Laurel Springs
Connell, Emmet J....Jersey City
Coppoletta, Joseph M....River Edge
Coughlin, John P....Jersey City
Cuono, Joseph D....Palisade
Eddy, Lester R....Sussex
Gibbins, Albert L....Newark
Gilmour, John R....E. Orange
Glass, William H....S. Orange
Glassner, Frank....Roselle
Goldman, Jerome....Maplewood
Goldsmith, Alfred S....N. Bergen
Goldstein, Marvin B....Newark
Hebble, Howard M....Moorestown
Higi, Joseph E....Newark
Holster, Stephen G....Paterson
Hubbard, Samuel T., Jr....Hackensack
Hyman, LeRoy J....Asbury Park
Insel, Herman H....Montclair
Johnson, Herbert F....Collingswood
Johnston, Sidney F....Rochelle Park
Klein, Edward C., Jr....E. Orange
Kurtz, Gerald I....Paterson
Lawless, Edward T....E. Orange
Lucey, James J....Perth Amboy
Lynch, Edward T....Elizabeth
McCarthy, John J....N. Bergen
McCarthy, John J....Bergen
MacGovern, Thomas F....South Orange
Magee, Edward S....Haddonfield
Manson, William W....E. Orange
Marquis, Dean W....Short Hills
Nicholson, Jesse T....Haddonfield
O'Connor, Paul A....Newark
Orton, Foster....Rahway
Paul, Hugh C....Caldwell
Prince, Robert A....Paterson
Rapp, Michael S....Passaic
Reich, Henry....Newark
Ryan, Eric J....Saddle River
Shapiro, Ralph N....Newark
Sharp, Reuben L....Moorestown
Shope, Richard E....Kingston
Snagg, William T....Haddonfield
Sobol, Herman....Newark
Ter Kuile, Reinold W....Ridgewood
Utkewicz, Edmond A....Jersey City
Van Orden, Thomas D....Pompton Lakes
Wescoat, George N. A....Moorestown
Wheeler, William K....Roselle

New Mexico

Duff, Percival A....Albuquerque
Hack, Rudolf W....Raton
Johnson, Broor A....Santa Rita
Marcley, David M....Las Cruces

New York

Abelson, Louis....New York
Ambrusko, John....N. Tonawanda
Arkwright, Richard M....Huntington
Bailey, Frederick R....New York
Baker, Daniel C. Jr....New York
Bates, Rolland C....Binghamton
Benauer, Mortimer B....Tompkinsville
Boller, Charles....Rochester
Breese, Burtis Burr, Jr....Rochester
Brittain, Knox....Spencerport
Brondum, Howard W....Brooklyn
Bush, Frederick W....Rochester
Cameron, Dwight....Manor
Chapin, Sidney E....New York
Chasserot, Harry L....New Rochelle
Cione, Victor D....Brooklyn
Coates, William A....Babylon
Conner, James F....Rochester
Console, William A....Brooklyn
Curtis, John K....New York
De Julio, Nicholas J....Brooklyn
Deuell, William D....New York
deVeer, James A....W. Williston
Dillenberg, Stanley M....Larchmont
Dillon, Emerson D....Phoenix
Dixon, Thomas W....Brooklyn

MEDICAL OFFICERS RELEASED BY THE NAVY

New York—Continued

Earl, Charles A.....Oneida
Edmunds, Stanley L.....Glens Falls
Evans, William W.....New Rochelle
Ferris, Henry W.....Ithaca
Fleischer, Abraham J.....Concourse
Fox, Frank E.....Fulton
Gaynor, Sidney S.....New York
Genovese, Pasquale D.....Astoria
Gildea, Alfred R.....Rochester
Gudger, James R.....New York
Halpern, Leonard E.....New York
Hammond, Jack.....Bronx
Heck, Charles C.....Rochester
Henley, Thomas F.....New York
Hogeboom, Willard L.....Helmuth
Huntington, Robt. W., Jr.....
.....Hastings-on-Hudson
Ide, Arthur G.....Rochester
Jacobs, Sherman R.....Oneonta
Kane, John T.....Birmingham
Keller, Donald R....Westhampton Beach
Kemp, Walter W.....Great Neck
Kiernan, Raymond F.....New Rochelle
Kimball, Cyril V.....Hammond
Lavine, William.....Syracuse
Lerner, Peter S.....Sayville
Levine, Alexander.....Brooklyn
Louis, Marshall R.....Rochester
Lusskin, Harold.....New York
MacArt, James H.....S. Orange
McMahon, Daniel P.....Buffalo
McMahon, Henry E.....Plandome
Martin, George G.....Buffalo
Miano, Lawrence J. A.....Gardenville
Millar, Russell A.....Williston Park
Mills, Harry L.....Governeur
Moscarella, Alfred S.....Spring Valley
Moynahan, Brian St. John.....Brooklyn
Murphy, Willis A.....New York
Nadler, Jacob E.....Jackson Heights
Nickel, William F., Jr.....New York
Norton, Manville W.....New Rochelle
Owen, Joseph W.....New York
Patterson, Ezeral J.....Richmond Hill
Phelan, William J.....Troy
Platt, Edward S.....Auburn
Reed, William P.....Larchmont
Rommel, Jacob F.....Oneida
Russell, Theodore B.....New York
Ryan, Martin J.....Harrison
Sandler, Charles.....New York
Sanger, Grant.....New York
Schneierson, Sol S.....New York
Sheldon, John H.....Glen Falls
Shick, Simon L.....Richmond Hill
Snyder, Eugene R.....New York
Stamatis, Leon.....Brooklyn
Stapleton, Michael J.....Albany
Stein, Ignatius L.....Bayville
Syverton, Jerome T.....Rochester
Twiss, John R.....New York
Ulmar, David.....New York
Vicale, Carmine T.....New York
Voss, Harry E.....Scarsdale
Warden, Cyrus E.....Amityville
Webber, Joseph T.....Brooklyn

North Carolina

Ayers, Sanford E.....Durham
Barringer, Archibald L.....Mt. Pleasant
Byrnes, Thomas H.....Charlotte
Chadwick, William S.....Beaufort
Chiles, George G.....Sanford
Crosby, Frank H.....Charlotte
Doty, George E., Jr.....Bismarck
Fox, Herbert J.....Durham
Kendrick, Charles M.....Lenoir
Pearse, Richard L.....Durham
Roberson, Edward L.....Tarboro
Robertson, Edwin Mason.....Durham
Schulman, Nat J.....Jacksonville
Stanbury, John B.....Winston-Salem
Turrentine, Kelby P.....Kinston
Van Nortwick, William A.....Greenville

Ohio

Alter, Francis W., Jr.....Toledo
Anderson, John B.....Cleveland
Atkins, Harry T.....Cincinnati
Bannister, William K.....Lima
Bolin, Joseph B.....Norwood
Bunner, Daniel S.....Columbus
Burkhardt, Stanley L.....Cincinnati
Cassady, Harold A.....Cincinnati
Castle, Gerald H.....Cincinnati
Crawford, Robert R.....Mansfield
Culler, Arthur M.....Dayton
Day, George T.....Shaker Heights
Dinardo, Charles J.....Shaker Hts.
Evans, William H.....Youngstown
Fleming, John G.....Cincinnati
Friedman, Edward.....Cincinnati
Gallagher, John F.....Steubenville
Glomb, Albert M.....Rocky River
Gowan, Robert E. L.....Bigby
Grollman, Aaron I.....Cincinnati
Hamilton, William S.....Norwood
Henderson, William S.....Akron
Hildebrand, Roy D.....Newcomerstown
Hise, Fred R.....Canton
Hosking, Frederick S.....Lakewood
Hurless, Laurel B.....Dayton
Huston, Harry R.....Dayton
Huth, Paul O.....Cambridge
James, David C.....E. Cleveland
Johnson, Davis M.....Columbus
Kidd, Robert A., Jr.....Columbus
Lawton, Orval M.....Youngstown
Lehrer, Henry G.....Wadsworth
London, McKinley....Cleveland Heights
Lyons, William F.....Delaware
McNemer, Philip H.....Cleveland
Mikes, Frank L.....Garfield Heights
Norcross, Nathan C.....Toledo
Osgood, Frederick P.....Toledo
Park, Benjamin S.....Painesville
Ramey, William O.....Cincinnati
Renner, John A.....Youngstown
Reul, Thomas W.....Lima
Roberts, John L.....Toledo
Rowland, Guy A.....Cleveland Heights
Ryan, Edward J.....S. Euclid
Sagebiel, James L.....Dayton
Schneider, Harold O.....Cleveland
Shaper, Aaron A.....Cincinnati
Shrader, Albert M.....Waverly
Slivka, James E.....Cleveland
Smith, John F.....Montpelier
Solt, Robert L.....Bucyrus
Spisak, Edward A.....Shaker Heights
Shane, Edwin S.....Circleville
Sheets, Maurice V.....Newcomerstown
Stimson, George A.....Sandusky
Taggart, Wallace B.....Dayton
Tildes, John H.....Lakewood
Walker, Malcolm E.....E. Cleveland
Ward, Charles F.....Cleveland
Wilson, Judson D.....Columbus
Winter, Sherl J.....Dayton
Worstell, Henry P.....Columbus

Oklahoma

Branham, Donald W.....Oklahoma City
Coley, Joe H.....Oklahoma City
Evans, Alfred M.....Perry
Henry, Gifford H.....Tulsa
Pinholster, John H.....Oklahoma City
Puckett, Howard L.....Stillwater
Ray, Raymond G.....Tulsa
Sisler, Franklin H., Jr.....Bristow
Smith, Roy L. O.....Tulsa
Spann, Logan A.....Tulsa
Wainwright, Tom L.....Oklahoma City
Wright, Lennel I.....Blackwell

Oregon

Bueermann, Winfred H.....Portland
Chisholm, William P.....Lakeview
Dixon, Henry H.....Portland
Frazier, William R.....Portland

Oregon—Continued

Haun, James J. D.....LaGrange
Hughes, John E.....Portland
Hutchens, Wendell H.....Portland
Jones, Lester T.....Portland
Jones, Raymond F.....Redmond
Kabeiseman, Francis J.....Hillsboro
Keane, Roger H.....Portland
Kelsey, Walter L.....Portland
Landers, Ellery L.....Joseph
McArthur, Robert L.....Portland
Millett, George W.....Portland
Mitchell, Edward.....McMinnville
Ottman, Philip A.....Portland
Owen, Eugene P.....Portland
Ryan, Paul H.....Portland
Sisson, Merrell A.....Portland
Strickland, Graeme H.....Portland
Thomas, Robert L.....Portland

Pennsylvania

Allan, John H.....Jenkintown
Androski, John J.....Scranton
Andrews, Raymond W.....Jamestown
Auslander, James L.....McKeesport
Bauer, Walter D., Jr.....Tyrone
Beall, William T.....New Castle
Bernhard, John J.....Allentown
Bodine, Marc W.....Williamsport
Bowman, James E.....Philadelphia
Boyle, James W.....Luzerne
Brogan, Edmund J.....Philadelphia
Burger, Regis F.....Pittsburgh
Burkley, George G.....Pittsburgh
Burns, John J.....Philadelphia
Campbell, Edward H.....Philadelphia
Clinger, Orris W.....Oil City
Crellin, Jacob A.....Philadelphia
Davis, Clare N.....Cynwyd
Davis, Raymond C.....Susquehanna
Downey, Francis E.....Bentleyville
Dreyer, John F.....Allentown
English, James B.....Altoona
Flannery, John L.....Harrisburg
Gallagher, Francis P.....Philadelphia
Genkins, Morris H.....Norristown
Gennaria, Charles R.....Shamokin
Goebert, Herbert W.....Coatesville
Griffith, Jesse B.....Pittsburgh
Hamilton, Edwin G.....Warren
Harkins, Francis A.....Philadelphia
Hartley, Arthur A.....Merion
Henninger, James M.....Sharpsburg
High, Carl M.....Reading
Houck, Edgar K.....Reading
Horwitz, Ellis B.....Philadelphia
Hunter, Charles T.....Newton
Janton, Otto H.....Philadelphia
Jones, Charles A.....Philadelphia
Judge, Francis P.....Wilkes-Barre
Kannerstein, Milton H.....Allentown
Kelley, Eugene M.....Exeter Boro
Kern, Richard A.....Wynnewood
Kiene, Richard H.....Bryn Mawr
Klemm, Ralph A.....Philadelphia
Knight, Francis P.....Philadelphia
Komisar, Paul S.....Erie
Leberman, Paul R.....Philadelphia
Letcher, Charles W.....Wilkes-Barre
Logan, Victor W.....Cynwyd
Lutz, Francis C.....Philadelphia
Lyon, Hollister W.....Punxsutawney
McCune, Quay A.....East Warren
McLaughlin, John J.....Lansdowne
McLean, Edwin B.....Abington
Miller, Henry W.....North Hills
Miller, Joseph J.....Pittsburgh
Montgomery, Hugh.....Ardmore
Moran, Thomas J.....Castle Shannon
Morrison, John L.....Kane
Mosser, William B.....Kane
Nyce, Harry C.....Wallingford
Patterson, Robert L.....Beaver Falls
Patterson, Rex A.....Ligonier
Pfohl, George H.....Wilkinsburg

MEDICAL OFFICERS RELEASED BY THE NAVY

Pennsylvania—Continued

Ramsey, Lorraine E.....Carnegie
Rathmell, Thomas K.....Sharon
Rothrock, Henry A., Jr.....Bethlehem
Rumble, Edmund T., Jr.....Philadelphia
Schofield, Frederick S.....Philadelphia
Schuster, Lawrence E.....East Bangor
Sell, Oliver M.....Pittsburgh
Shanor, Harold A. R.....Pittsburgh
Sinclair, Sydney E.....Williamsport
Stahlnecker, Charles S.....Philadelphia
Tate, James H.....Erie
Turnbach, Robert J.....Allentown
Twining, Howard E.....Richboro
Yerg, Adam F.....Warren

Rhode Island

Bowles, George E.....Providence
Davis, William P.....Providence
Hall, Marshall G.....Newport
Littlefield, Frank B.....Providence
Mastrobuono, Amedeo N.....Lafayette
Merrill, Whitman.....Washington
Riley, Frederick R.....Providence
Stevens, Raymond E.....Rumford
Vieira, Edwin.....Providence

South Carolina

Black, Herbert M.....Walterboro
Brewer, John M.....Kershaw
Bultman, Robert B.....Sumter
Carnes, Walter C.....Lancaster
Green, Robert H.....Charleston
Holloway, William J.....Ware Shoals
Linton, Irwin G.....Charleston
Royal, Howard, G.....Greenwood
Siau, James R. S. III.....Georgetown
Stevens, Alexander H., Jr.....Union

South Dakota

Hummer, Francis L.....Lead
Tobin, Leonard W.....Mitchell

Tennessee

Black, William T., Jr.....Memphis
Fuqua, Harold B.....Johnson City
Gillespie, Clarence E.....Memphis
Gotten, Henry B.....Memphis
Gotten, Nicholas.....Memphis
Helm, Harry C.....White Pine
Mason, Alfred D., Jr.....Memphis
Miller, Richard A.....Memphis
Muse, William S.....Knoxville
Penn, Jarrell.....Knoxville
Poole, Wallace L.....Johnson City
Scales, Hunter L., Jr.....Starkville
Wallace, Raymond A.....Memphis

Texas

Allison, Wilfred J.....Dallas
Andrews, Tom A., Jr.....Addicks
Awe, Chester D.....El Paso
Babcock, Darrow S.....Houston
Barker, William E.....Corpus Christi
Barnes, Sam R.....Houston
Benson, Clifford D.....Honey Grove
Billups, James T.....Houston
Blackwell, Ben T.....Amarillo
Bloom, Fred A.....Houston
Brady, Jesse J.....Austin
Bratton, Robert E.....Austin
Caldwell, Elbert H.....Tyler
Cole, Thomas C.....Huntsville
Cummings, Hatch W., Jr.....Houston
Cyrus, Elbert M., Jr.....Fort Worth
Dailey, James E.....Houston
Darrough, Lawrence E.....Dallas
Davis, Berthol E.....Denton
Diddle, Albert W.....Dallas
Henderson, Donald G.....Houston
Hensley, Barnes C.....Houston
Hunter, Carroll D.....Dallas
Isaacks, Herbert E.....Fort Worth
King, Karl B.....Dallas
Knolle, Guy E.....Houston

Texas—Continued

Lewis, Sanborn J.....Beaumont
Lindsey, Eugene H.....Beaumont
Lovett, James P.....Olney
Mabry, James D.....Penelope
McCollum, Charles H. Jr.....Fort Worth
Mitchner, James M.....Houston
Moore, Henry W.....Dallas
Outlar, Leonard B.....Wharton
Overton, Marvin C., Jr.....Pampa
Painton, Clifford E.....Port Arthur
Parsons, William F.....Fort Worth
Petta, Walter B.....San Antonio
Pugsley, Cornelius, Jr.....Houston
Puig, Valentine L., Jr.....Laredo
Roan, John L.....Commerce
Ross, Edward S.....Denison
Smith, Howard O.....Marlin
Steinbach, Herbert L.....Benham
Truett, Charles B.....Dallas
Tucker, Victor C.....San Antonio
Von Briesen, Delphin.....El Paso
White, David L.....San Marcos
Williford, Herman B.....Beaumont
Willoughby, Russell C.....Port Arthur
Youngblood, Jarvis C.....Houston

Virginia

Alexander, Edward L.....Newport News
Angle, Lewis W.....Rocky Mount
Brown, Leland C.....Staunton
Clark, John W.....Ridgeway
Crawford, John C.....Norfolk
Eversole, Joseph W.....Coeburn
Fay, Frederick O.....Norfolk
Gardner, Henry L., Jr.....Suffolk
Garrison, George H. H...Virginia Beach
Groseclose, Eugene S.....Lynchburg
Haddock, Edward E.....Richmond
Hall, Snowden C., Jr.....Danville
Houck, Joseph W.....Lynchburg
Hurlbut, Jesse L.....Salem
King, James P.....Radford
Lepis, Alphonse A.....Norfolk
McGriff, J. Rollins.....Arlington
Miller, James A.....Winchester
Newman, Sigmund.....Arlington
Palmer, Alfred M.....Vienna
Patterson, Charles H.....Lynchburg
Pembleton, Williams E.....Lynchburg
Reed, Wellford C.....Richmond
Roberts, David C.....Roanoke
Serrano, Ernest N.....Waynesboro
Stone, Harry B., Jr.....Roanoke
Upchurch, Roy W.....Danville
Williams, Mortimer H.....Roanoke
Yeager, William R.....Parkersburg
Yeatts, Harry B.....Danville
Ylung, Charles A.....Roanoke

Washington

Ash, Joseph L.....Seattle
Barner, Henry A.....Bremerton
Butler, Morville L.....Spokane
De Marsh, Quincy B.....Seattle
Dockendorff, William O.....Everett
Duncan, John A.....Seattle
Fatherree, Thomas L.....Soap Lake
Gould, Lindsay McD.....Seattle
Guyer, Edward C.....Seattle
Hartley, Herbert L.....Seattle
Haviland, James W.....Seattle
Jensen, Carl D. F.....Seattle
Jensen, Clyde R.....Seattle
Jensen, Earl C.....Seattle
Lewis, Elihu I.....Rocksbury
Losli, Ernest J.....Des Moines
Lower, Raymond A.....Spokane
Meagher, Angus C.....Toppenish
Moore, Philip H.....Carnation
Morrow, Cecil L.....Seattle
Murphy, Donald J.....Bellingham
Ohman, Albert C.....Seattle
Rew, Willard B.....Yakima
Rollins, Paul R.....Seattle

Washington—Continued

Sheridan, Thomas P.....Everett
Skinner, John W.....Kirkland
Voegtlin, Walter L.....Seattle
Wanamaker, Frank H.....Seattle
Watts, Charles E.....Seattle

West Virginia

Basman, Jack.....Charleston
Daniels, Willard F.....Huntington
Gage, Everett L.....Bluefield
Gang, Lawrence B.....Huntington
Godbey, John R.....Charleston
Gray, Maston L.....Huntington
Lewis, Clarence E.....Charleston
McClung, William D.....Richwood
McIlvain, William E.....Moundsville
Mason, James T., Jr.....Bluefield
Osterman, Arthur L.....Wheeling
Phillips, Edward S.....Wheeling
Strange, William W.....Huntington

Wisconsin

Atwood, David C.....Madison
Batzle, Joseph H., Jr.....Madison
Bear, Nathan E.....Monroe
Benn, Herbert P.....Stevens Point
Bergen, Ralph D.....Milwaukee
Boudry, Marshall O.....Oconomowoc
Brady, Charles J.....Lake Geneva
Broderick, Clifford F.....Wauwatosa
Buckley, Roland A.....Eau Claire
Christensen, Howard W.....Wausau
Churchill, Bernard P.....Milwaukee
Correll, Howard L.....Milwaukee
Dean, Joseph C.....Madison
Donath, Lawrence H.....Wauwatosa
Franseen, Elmer F.....Frederic
Galasinski, Roman E.....Milwaukee
Goggins, John R.....Pulaski
Goodlad, James H.....Madison
Grossman, Arthur M.....Allis
Hatleberg, Earl J. A.....Chippewa Falls
Hilker, Harold C.....Racine
Hirschboeck, John S.....Milwaukee
Jorris, Edwin H.....Madison
Kleinpell, Walter C.....Kenosha
Kundert, Palmer R.....Madison
McCarty, Robert T.....Appleton
McDonald, Robert E.....Milwaukee
Madison, Burle B.....Portage
Margoles, Milton.....Wauwatosa
Markson, Leonard S.....Milwaukee
Mauermann, William J.....Madison
Medison, Burle B.....Portage
Metcalf, Cecil J.....Dodgeville
Moore, William J.....Madison
Pansch, Frank N.....Appleton
Rastetter, Joseph W.....Kenosha
Ricciardi, Ignatius J.....Milwaukee
Rueckert, Ray R.....Madison
Schneeberger, Leonard J.....Milwaukee
Simpson, Frederick G.....Milwaukee
Vinograd, Eugene H.....Milwaukee
Wanless, John F.....Richland Center
Welsch, Raymond G.....Mayville
Williams, Earl B.....Oshkosh
Zawodny, Stanley E.....Milwaukee

Wyoming

Keenan, Leo W.....Torrington

Naval Reserve Medical Officers Recommended for Separation from the Naval Reserve and Retired

Iowa

Bunch, Harold M.....Shenandoah

Missouri

Stauffer, Tom G.....St. Louis

New York

Tomaselli, Blase L.....Rochester

ORGANIZATION SECTION

THE PHYSICIAN'S FEDERAL INCOME TAX

PREPARED BY THE BUREAU OF LEGAL MEDICINE AND LEGISLATION, AMERICAN MEDICAL ASSOCIATION

Federal income taxpayers on a calendar year basis must on or before March 15 do two things: (1) they must file their final returns for the year 1945 and (2) they must file a declaration of estimated tax for 1946.

WHO MUST FILE RETURNS

A return must be filed by every citizen or resident of the United States whose total gross income in 1945 was $500 or more. Joint returns may be filed by husband and wife if (1) they were married at the end of the year and (2) both were citizens or residents of the United States. Such a joint return may be filed even though one spouse has neither income nor deductions.

WHO MUST FILE DECLARATIONS OF ESTIMATES

In addition to filing the final return for 1945, certain taxpayers must file on or before March 15 a declaration of estimated tax for 1946. Such a declaration must be filed by a taxpayer if—

(1) his gross income from wages or salary subject to withholding can reasonably be expected to exceed the sum of $5,000 plus $500 with respect to each surtax exemption, except his own; or

(2) his gross income which is not subject to withholding can reasonably be expected to exceed $100 for 1946 and his gross income from all sources can reasonably be expected to be $500 or more.

A taxpayer, if necessary, may file one or more amended declarations during 1946 but only one in each calendar quarter. The last such amended declaration must be filed on or before Jan. 15, 1947.

The estimated tax may be payable quarterly as it was in 1945, the final payment becoming due Jan. 15, 1947.

TAX RATES AND EXEMPTIONS

Final Return for 1945.—The normal tax rate is 3 per cent and the surtax rate begins at 20 per cent on the first $2,000 of surtax net income and increases in rate for incomes in the higher brackets. For the normal tax an exemption of $500 is allowed each taxpayer irrespective of the number of dependents or marital status. If a joint return is filed by husband and wife the exemption normally is $1,000. If, however, the adjusted gross income of one spouse is less than $500 the exemption claimable on the joint return is $500 plus the amount of that adjusted gross income. For the surtax, exemptions are in the amount of $500 each for the taxpayer, for his or her spouse and for each dependent whose gross income is under $500.

The determination as to whether a taxpayer is single or married is made as of the last day of the taxable year. There is no status determination date for dependents, the test being whether the taxpayer furnished over half of the support.

Declarations of Estimates for 1946.—The normal tax rate remains at 3 per cent, but after the tentative normal tax is computed at this rate there is allowed a reduction of 5 per cent of the tax thus computed. The same exemptions are allowed for the normal tax as for the surtax. The surtax rate was reduced by the revenue act of 1945 by 3 percentage points in each surtax bracket. The rate therefore begins at 17 per cent of the first $2,000 of surtax net income. After the tentative surtax is computed, a reduction of 5 per cent of it is permitted by the new law. The surtax exemptions are the same for the 1946 declaration of estimate as for the final return for 1945.

GROSS AND ADJUSTED GROSS INCOMES

Gross Income.—A physician's gross income is the total amount of money received by him during the year for professional services, regardless of the time when the services were rendered for which the money was paid, assuming that the return is on a cash receipts and disbursements basis, plus such money as he has received from investments and from other sources.

If a physician receives a salary as compensation for services rendered and in addition thereto living quarters or meals, the value to the physician of the quarters and meals so furnished ordinarily constitutes income subject to tax. If, however, living quarters or meals are furnished for the convenience of the employer, the value thereof need not be computed and added to the compensation otherwise received by the physician. As a general rule, the test of "convenience of the employer" is satisfied if living quarters or meals are furnished to a physician who is required to accept such quarters and meals in order to perform properly his duties. For example, if a physician employed by a hospital is subject to immediate service at any time during the twenty-four hours of the day and therefore cannot obtain quarters or meals elsewhere without material interference with his duties and on that account is required by the hospital to accept the quarters or meals furnished by it, the value thereof need not be included in the gross income of the physician.

Adjusted Gross Income.—Adjusted gross income is defined to mean gross income minus—

(1) deductions attributable to a trade or business carried on by the taxpayer, if such trade or business does not consist of the performance of services by the taxpayer as an employee;

(2) expenses of travel, meals and lodging while away from home, paid or incurred by the taxpayer in connection with the performance by him of services as an employee;

(3) certain reimbursed expenses in connection with employment;

(4) deductions attributable to property held for the production of rents or royalties;

(5) depreciation or depletion allowed a life tenant of property or to an income beneficiary of property held in trust; and

(6) losses from the sale or exchange of property.

The adjusted gross income is to be used as a basis to determine (1) the limitation on the deduction for charitable contributions (15 per cent of the adjusted gross income), (2) the amount of the deduction for medical expense (excess over 5 per cent of adjusted gross income), (3) the amount of the optional standard deduction the taxpayer may elect to take (10 per cent of adjusted gross income in certain income brackets), (4) exemptions in certain cases where joint returns are filed by husband and wife, as previously pointed out, and (5) if the taxpayer may take advantage of the optional tax table devised for incomes under $5,000.

OPTIONAL TAX TABLE

If a taxpayer has an adjusted gross income of less than $5,000, he may if he so elects compute his tax by using the optional or alternative tax table. This table allows for the normal tax and surtax exemptions and for nonbusiness deductions approximating 10 per cent of the adjusted gross income. The election may be exercised irrespective of the source of the income. This table may not be used if the adjusted gross income of the taxpayer is $5,000 or more but in such cases an optional flat $500 deduction may be claimed in lieu of nonbusiness deductions generally, such as charitable contributions, interest and taxes. Such a taxpayer may elect to exercise this option or he may itemize such deductions as in prior years. The taxpayer who reports an adjusted gross income of less than $5,000 a year will not be allowed the standard deduction as a separate item. Its benefits may be obtained only by using the optional tax table, which, as already indicated, assumes that the user of the table is entitled to a deduction approximating 10 per cent of his adjusted gross income.

PHYSICIANS IN SERVICE

The fact that a physician is in service does not of itself excuse a failure to file a return or declaration. It is understood, however, that if because of the inaccessibility of the necessary records a physician in service is unable to file a complete return he may file a tentative return on which he must estimate his income, deductions and tax as best he can and indicate on the return his reasons for following the procedure. At a later date, if that procedure is followed, a complete return must be filed and necessary adjustments in tax will be made. What has just been said relates to physicians in service who are stationed in this country.

If a physician in service is on duty outside the United States, no income tax will become due, generally speaking, until the fifteenth day of the sixth month following the month in which the physician ceases, except by reason of death or incompetence, to be a member of the military forces on sea duty or in service outside the continental United States, or the fifteenth day of the third month following the month in which the present war is terminated, whichever may be the earlier. When a physician in service returns to the United States, he should contact his local collector of internal revenue and make arrangements to bring his returns up to date.

The law provides a special exemption for members of the armed forces. For taxable years after 1942 and before the termination of the war, so much of the active service pay as does not exceed $1,500, received as a commissioned officer or a commissioned warrant officer, is excluded from gross income. In addition, the commissioned officer is entitled to the personal exemptions, credits and allowable deductions provided by law. For taxable years after 1940 and before the end of the war all of the pay for active service received by a serviceman below the grade of commissioned officer or commissioned warrant officer is nontaxable. He too is entitled to the other exemptions, credits and deductions.

If ability to make payment is materially impaired by reason of service, deferment of the tax, without interest, until six months after active service terminates can be effected through the office of the collector of internal revenue, under section 513 of the Soldiers' and Sailors' Civil Relief Act. Furthermore, if it causes hardship to meet tax liability after termination of service, additional extension may be obtained under section 700 of that act, by application to the courts, for a period equal to the length of military service, subject to the requirement of periodic payment, with interest at 6 per cent.

The revenue act of 1945 grants further extension of time for payment, without interest, of any tax attributable to service pay for any taxable year beginning after Dec. 31, 1939 and before Jan. 1, 1947. The payment of the tax, if proper application is made, will be extended for thirty-six months, payable in twelve equal quarterly instalments. In the case of regular officers this extension operates only when the tax has been deferred by reason of sea or oversea duty. Application for the extension must be filed before the first instalment date which the law fixes as follows: If the release from active duty was prior to Dec. 1, 1945, the first instalment date will be May 15, 1946; (2) if released on or after Dec. 1, 1945 the first instalment date will be June 15, 1947 or the fifteenth day of the sixth month which begins after the date of release from active duty, whichever is earlier. A similar extension can be had in connection with the payment of the tax attributable to earned income of the years 1940 and 1941 which became due after entry into service. Earned income for this purpose cannot exceed $14,000.

Any tax owed by a member of the miiltary or naval forces who dies in service will be canceled, this relief being retroactive to Dec. 7, 1941. If the tax has already been assessed at the time of the death of the person in service it will be abated. If the tax has already been collected it will be refunded as overpayment. This tax forgiveness applies only to income taxes and not to the estate tax.

The cost of equipment of an army officer or navy officer is deductible only to the extent that it is especially required for his profession and does not merely take the place of articles required in civilian life. The cost of uniforms is considered a personal expense and hence not deductible. The cost of gold braid and cap devices required by regulations of the Navy to be worn on the clothing of a naval officer has been held to constitute an expense necessitated by reason of his profession as an officer and to be deductible as a business expense.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The taxpayer should make no claim for the deduction of expenses unless he is prepared to prove the expenditure by competent evidence. So far as practicable, accurate itemized records should be kept of expenses and substantiating evidence should be carefully preserved. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone,

the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in such dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted, but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment such as has been described, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical and laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recovered through depreciation deductions taken year by year over its useful life, as described later.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal or average rates of depreciation, the following have been suggested: automobiles, 25 per cent a year; ordinary medical libraries, x-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments and diagnostic apparatus, 10 per cent a year; office furniture, 5 per cent a year.

The principle governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the salvage value of the article at the end of its useful life, shall not be greater than its purchase price. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in each individual case.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

Automobiles.—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeur's wages, and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is possessed by the present taxpayer.

If an automobile is used for professional and also for personal purposes—as when used by the physician partly for recreation, or so used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood. What has been said in respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Contributions to Charitable Organizations.—For detailed information with respect to the deductibility of charitable contributions generally, physicians should consult the official return blank or obtain information from the collectors of internal revenue or from other reliable sources. Attention is called to the change in the law that applies to deductions for charitable contributions, namely, that an individual taxpayer can deduct such contributions only to the extent that they do not exceed 15 per cent of his adjusted gross income. The physician may not deduct as a charitable contribution the value of services rendered an organization operated for charitable purposes.

Bad Debts.—Physicians who make their returns on a cash receipts and disbursements basis, as most physicians do, cannot claim deductions for bad debts.

Taxes.—Taxes generally, either federal or state, are deductible by the person on whom they are imposed by

law. Both real and personal property taxes are deductible; but so-called taxes, more properly assessments, paid for local benefits, such as street, sidewalk and other like improvements, imposed because of and measured by some benefit inuring directly to the property against which the assessment is levied, do not constitute an allowable deduction from gross income. Physicians may deduct state gasoline taxes and state sales taxes. In some states sales taxes are imposed on the seller, but, if they are passed on to the buyer, the latter may deduct them.

State income and use taxes are deductible; federal income taxes are not. Federal import, excise or stamp taxes are deductible only to the extent that they are attributable to business activities. State automobile license fees are deductible. If a state or local fee is imposed for regulatory purposes, and not to raise revenue, the fee may not ordinarily be deducted as a tax. If such fees, however, are classifiable as a business expense, they are deductible as such. Annual registration fees imposed on physicians probably come within the category of regulatory fees and should be deducted as a business expense rather than as taxes. Local and state occupational taxes imposed on physicians are deductible either as taxes or as a business expense, depending on the purpose for which the tax is imposed.

The excise taxes imposed on employers by section 804, title VIII, and section 901, title IX, of the Social Security Act, commonly referred to as old age and unemployment benefit taxes, are deductible annually by employers in computing net income for federal income tax purposes. If the taxpayer's return is made on a cash basis, as are the returns of practically all physicians, the taxes are deductible for the year in which they are actually paid. If the return is made on an accrual basis, the taxes are deductible for the year in which they accrue, irrespective of when they are actually paid. Employees, including physicians whose employment brings them within that category, may not deduct the tax imposed on them by section 801, title VIII, of the Social Security Act, generally referred to as the old age benefits tax. If, however, the employer assumes payment of the employee's tax and does not withhold the amount of the tax from the employee's wages, the amount of the tax so assumed may be deducted by the employer, not as a tax paid but as an ordinary business expense.

Medical Expense.—A taxpayer may deduct amounts expended for medical, dental and hospital care for himself, his spouse or a dependent, not compensated for by insurance or otherwise, including amounts paid for accident and health insurance, according to a prescribed formula. Deductions will be permitted to the extent that such expenses exceed 5 per cent of the adjusted gross income of the taxpayer but not in excess of $2,500 in case of a taxpayer with more than one surtax exemption, or $1,250 in case of a taxpayer with only one surtax exemption.

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire or Other Causes.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expense incurred in the defense of a suit for malpractice is deductible as a business expense.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Health Programs for Government Employees

The Senate Committee on Civil Service has reported H. R. 2716 to the Senate with the recommendation that it pass, providing health programs for government employees to be established in localities where there are a sufficient number of federal employees to warrant the provision of such services. Services will be limited to (1) treatments on the job of illnesses and dental conditions requiring emergency attention, (2) preemployment and other examinations, (3) referral of employees to private physicians and dentists and (4) preventive programs relating to health. An amendment proposed by the Senate committee would authorize the utilization of osteopathic services in the health programs to be established under the bill.

Educational Loans

Senator Langer, North Dakota, by S. 1782, proposes an appropriation of $3,000,000,000 to enable the Commissioner of Education to make loans to individuals desiring to obtain vocational, technical, academic or professional education beyond the high school level. The commissioner would be authorized to promulgate such rules and regulations as may be necessary to carry out the provisions of the legislation.

Chemical Tests for Intoxication

An amendment to the District of Columbia Traffic Act is proposed by H. R. 5406, introduced by Representative Hébert, Louisiana, by request, to provide tests of blood, urine and breath of persons arrested in the District of Columbia on a charge of operating a vehicle under the influence of intoxicating liquor or on a charge of negligent homicide or on a charge of manslaughter committed in the operation of any vehicle. The bill proposes that (1) evidence that there was five one-hundredths of 1 per cent, or less, by weight of alcohol in the defendant's blood or urine or an equivalent amount of alcohol in two thousand cubic centimeters of his breath (alveolar air),

shall be prima facie evidence that the defendant was not under the influence of intoxicating liquor at the time the specimen was taken; (2) evidence that there was more than five one-hundredths of 1 per cent and less than fifteen one-hundredths of 1 per cent by weight of alcohol in the defendant's blood or urine, or an equivalent amount of alcohol in two thousand cubic centimeters of his breath (alveolar air), shall be relevant evidence but is not to be given prima facie effect in indicating whether or not the defendant was under the influence of intoxicating liquor at the time the specimen was taken; and (3) evidence that there was fifteen one-hundredths of 1 per cent, or more, by weight of alcohol in such defendant's blood or urine, or an equivalent amount of alcohol in two thousand cubic centimeters of his breath (alveolar air), shall be prima facie evidence that such defendant was under the influence of intoxicating liquor at the time the specimen was taken.

Hill-Burton Hospital Construction Bill

Hearings have been scheduled to begin on or about February 25 by a subcommittee of the House Committee on Interstate and Foreign Commerce on the Hill-Burton hospital construction bill.

STATE LEGISLATION

California

Bill Introduced.—S. C. R. 16-X proposes a resolution requesting the state director of finance to appropriate $44,000 for the purpose of carrying out a 1945 law providing for the better protection of the public health by state licensing, inspecting, regulating and supervising of public and private hospitals.

Bills Passed.—A. 37-X passed the senate January 31. It proposes to amend the business and professions code so as to increase the annual tax and registration fee of osteopaths from $5 to $10 for residents and from $2 to $10 for nonresidents. A. 88-X passed the assembly on January 22. It proposes the creation of a State Advisory Council on Hospital Facilities and would authorize the Department of Public Health to make a survey of existing public and private hospitals and health centers in the state, to evaluate the sufficiency of such hospitals and health centers to supply the necessary physical facilities for furnishing adequate hospital, clinic and similar services to the people of the state, and to make any recommendations concerning additional facilities as may be necessary. Prior to passage by the assembly, this proposal was amended to provide that the word "hospital" shall not include any institution conducted by or for the adherents of any well recognized church or religious denominations for the purpose of providing facilities for the care or treatment of the sick who depend on prayer or spiritual means for healing in the practice of the religion of such church or denomination.

Georgia

Bills Enacted.—H. 655 became Governor's Act 576 of the Acts of 1945 on January 31. It amends the law relating to qualifications of applicants for a license to practice nursing by reducing from 21 to 20 the required age of the applicant. H. 732 became chapter 623 of the Laws of 1946 on February 1. It authorizes the Board of Health to make and promulgate reasonable rules and regulations for the protection of the health and lives of inmates and patients of hospitals, sanatoriums, infirmaries, maternity homes, nursing homes and other institutions where persons are received for treatment, examination, maternity care or nursing care in the state. In connection therewith a hospital advisory committee will be established, consisting of three members appointed by the Medical Association of Georgia or its Board of Councilors, the total membership of the advisory committee numbering fourteen.

Kentucky

Bills Introduced.—H. 171 proposes the enactment of a law authorizing the establishment, maintenance and operation of medical service plan corporations. "Medical services" would mean the "general and usual services rendered and care administered by doctors of medicine." "Participating physician" would mean a "doctor of medicine licensed to practice medicine and surgery in this state under the provisions of the medical practice act" who agrees in writing to perform the services specified by the subscription certificates. S. 87 proposes that any person or corporation operating a hospital in Kentucky shall first obtain a license therefor. "Hospital" is defined as "any institution which maintains and operates organized facilities for the diagnosis, treatment and care of humans suffering from illness, injury or deformity, where bedside nursing care is rendered for a period exceeding twenty-four (24) hours."

Bill Passed.—S. 56 passed the senate January 31. To amend the law relating to the practice of pharmacy, this bill proposes that applicants for a license must be citizens of the United States, must have graduated from a school or college of pharmacy recognized and approved by the Kentucky board of pharmacy and must submit proper affidavits showing a minimum of one year of experience in a retail pharmacy under the supervision of a registered pharmacist.

Massachusetts

Bills Introduced.—H. 722 proposes that any clinic maintained by an insurance company for the treatment of injuries occasioned to employees of any of its assureds shall be open at all times for the reception of patients and shall have in attendance at all times a qualified physician.

Mississippi

Bills Introduced.—H. 235, to amend the law authorizing towns and districts to operate and maintain community hospitals, proposes that at least one member of the board of trustees of such institution shall be a practicing physician in good standing with the state medical association. H. 298, to amend the law relating to the issuance of marriage licenses, proposes that both applicants for a marriage license shall present a certificate certifying that he or she is "free from syphilis, gonorrhea and chancroid, or certifying as to the exact status of the venereal disease." The medical examination on which the certificate is based may be made by an active licensed physician in Mississippi, by a physician licensed to practice in any or all of the other states of the Union or the District of Columbia, by a commissioned medical officer on active duty in the armed forces of the United States, or by a medical officer of the United States Public Health Service, provided that said examination may be made free of charge by any full time county health officer licensed to practice in Mississippi if the person examined is unable to pay for same. H. 300 proposes to authorize the Mississippi State Board of Health to establish one hundred annual medical scholarships of the annual value of five hundred dollars each. The purpose of these scholarships is to induce medical graduates to engage in the general practice of medicine in a rural community in Mississippi.

Bill Enacted.—H. R. 10 was adopted Jan. 17, 1946. This is a resolution memorializing the Congress of the United States to enact suitable and adequate legislation for the training of doctors at government expense to take care of personnel of the United States armed forces wounded in the service of the country.

New York

Bills Introduced.—A. 610, to amend the public health law, proposes to require every physician to give notice immediately to the health officer of the county, city, town or village of every case of infantile paralysis under his care. Like notice would be given by the person in charge of any hospital, dispensary, asylum or other similar institution of every case of infantile paralysis coming under its care. The proposal also would create in the state department of health a division of infantile paralysis control. A. 683 and S. 577, to amend the workmen's compensation law, proposes that physician members of the advisory council shall not be eligible for authorization to render medical care under the workmen's compensation law and shall not examine, treat, consult or in any way care for a compensation claimant at the request either of the claimant or of a carrier. A. 706, to amend the unemployment insurance law, proposes that sickness or accident disability causing unemployment shall be certified under oath by a physician or surgeon

duly licensed to practice in the state of New York. A. 730 proposes a licensing law for persons and institutions desiring to conduct scientific experiments or to perform vivisection on living dogs. A. 741 and S. 603, to amend the education law, propose the establishment of the New York state university to be composed of a college of arts and sciences, engineering, medicine, law and such other colleges and professional schools as the regents may from time to time establish. A. 823, to amend the law relating to experiments on living dogs, proposes to prohibit such experiments even though conducted under the authority of the faculty of some regularly incorporated medical college or university as at present permitted. A. 839, to amend the education law, proposes the establishment of an Empire State University, to include, among other things, a school of medicine. A. 854, to amend the workmen's compensation law, proposes that an injured employee requiring dental care may select any dentist to treat him who is authorized under rules and regulations adopted by the commissioner on the recommendation of the state board of dental examiners. The reasonableness and necessity for such dental care and treatment shall be determined by the industrial board. A. 862, to amend the workmen's compensation law, proposes that the physician members of any committee appointed by the chairman of the industrial board to assist him in any particular case shall receive a fee for each case or shall be paid on a per diem basis as determined by the chairman. If they make a report and testify, they shall be paid an additional fee. S. 556, to amend the law in relation to hospital liens, proposes that such liens shall not include personal services rendered by a physician or surgeon and that the rates charged by the hospital shall be deemed equivalent to the scheduled rates currently approved by the industrial commissioner and the superintendent of insurance for cases under the workmen's compensation law. S. 620, to amend the law relating to actions for damages for death caused by wrongful act and the distribution of the proceeds thereof, proposes to put in the first priority of items to be paid for when damages are distributed the reasonable expenses of medical aid, nursing and attention incident to the injury causing death. S. 659, to amend the law in relation to barbiturates, proposes to prohibit the sale at retail of any barbiturate or other hypnotic or somnifacient drug to any person except on prescription written by "a person legally authorized to issue such prescription." A prescription shall state whether or not it may be refilled.

Virginia

Bill Introduced.—S. 120 proposes to authorize the establishment within the Department of Health of a Bureau of Rabies Control to prevent the occurrence and spread of said disease.

Coming Medical Meetings

Aero Medical Association, Chicago, April 7-9. Dr. David S. Brachman, 1016 Dime Building, Detroit 26, Secretary.

American Association of Anatomists, Cleveland, April 4-6. Dr. Eliot R. Clark, University of Pennsylvania School of Medicine, Philadelphia 4, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 8-9. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Physiological Society, Atlantic City, March 11-15. Dr. Wallace O. Fenn, 260 Crittenden Blvd., Rochester 7, New York, Secretary.

American Society for Experimental Pathology, Atlantic City, March 11-15. Dr. Harry P. Smith, 630 W. 168th St., New York 32, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 11-15. Dr. Raymond N. Bieter, University of Minnesota Medical School, Minneapolis, Secretary.

American Surgical Association, Hot Springs, Va., April 2-4. Dr. Warfield M. Firor, Johns Hopkins Hospital, Baltimore 5, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, March 5-8. Dr. Warren W. Furey, 30 North Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 18-21. Dr. John G. Young, 1719 Pacific Avenue, Dallas 1, Director of Clinics.

Federation of American Societies for Experimental Biology, Atlantic City, March 11-15. Dr. D. R. Hooker, 19 West Chase Street, Baltimore 1, Secretary.

Medical Library Association, New Haven, Conn., March 25-27. Miss Frida Pliefke, 2000 Medical Arts Bldg., Minneapolis 2, Secretary.

Missouri State Medical Association, St. Louis, March 24-26. Dr. Ralph L. Thompson, 634 N. Grand Blvd., St. Louis 3, Secretary.

Southeastern Surgical Congress, Memphis, Tenn., March 11-13. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Georgia, Secretary.

Tennessee State Medical Association, Knoxville, April 9-11. Dr. W. M. Hardy, 706 Church Street, Nashville, Secretary.

Washington Letter

(From a Special Correspondent)

Feb. 11, 1946.

General Bradley Receives Backing of Medical Chiefs

Medical chiefs of the United States armed forces joined with President Truman in backing General Omar Bradley in his program of veteran hospitalization which has been criticized by John Stelle, national commander of the American Legion as indicative of a "tragic breakdown" in the Veterans Administration. Approving the plans of General Bradley and his medical director, Major Gen. Paul R. Hawley, were Major Gen. Norman T. Kirk, Surgeon General of the Army; Vice Admiral Ross T. McIntire, Surgeon General of the Navy; Major Gen. Warren Draper, Deputy Surgeon General of the Public Health Service, and Brig. Gen. Malcolm Grow, Surgeon General of the Army Air Forces.. General Kirk pledged "complete support" to Bradley and Hawley, declaring "I think their plans are ideal. By setting up hospitals near large cities patients will be treated by the best specialists and Veterans Administration doctors will become better physicians." The only alternative, he said, was to build hospitals on the basis of "pork and patronage." Admiral McIntire pointed out that the Federal Bureau of Hospitalization supported the Bradley program. General Draper advocated "swamping" attacks on Bradley so that he can "go ahead and do a decent job for thousands of veterans." He urged the Veterans Administration chiefs to "stick to their guns." President Truman had pledged his "complete and unqualified support to General Bradley."

Antivivisectionists Seek Medical Testimony

Representative Lemke, Republican of North Dakota, states that he is seeking to have several nationally known doctors testify at forthcoming hearings on legislation to forbid experimentation on dogs in the District of Columbia. Sponsor of the bill which provides a minimum $100 fine, three months in prison or both for violations, he said that he felt such medical testimony would help to offset anticipated opposition of organized medicine. In the past similar bills have died because there were few recognized doctors to support them against the testimony of witnesses from the American Medical Association, U. S. Public Health Service, the District of Columbia Medical Society and the District health department. The bill is before the judiciary subcommittee of the House District Committee, and chairman Representative McGehee, Democrat of Mississippi, has promised to set an early date for hearings.

Congresswomen Favor Maternity Care for Wacs

Congresswomen have commented indignantly on the revelation by General Omar Bradley that married women veterans can't have their babies in Veterans Administration hospitals. They were largely in favor of having the regulations changed. General Bradley unearthed a ruling which barred former Wacs, Waves, Spars and women Marines from receiving maternity services in veterans' hospitals at government expense. One official explained that "one must have had some sort of an accident to get government care, and childbirth is not an accident." Representative Helen Gahagan Douglas, Democrat of California, called the ruling unfair, while Representative Francis Bolton, Republican of Ohio, believed that veterans' hospitals should provide obstetric service for women veterans but not antepartum or postpartum care.

Hospital Corps Veterans Organize to Find Jobs

A new veterans' organization, the National Association of Veterans of the Hospital Corps, has been organized to obtain jobs for members in hospitals, laboratories, drug companies and other medical activities. The president is Buford E. Kirwan, retired naval lieutenant and a veteran of both wars. Raymond Watson, the organizer, explains its objectives: "Hospitals, drug companies, laboratories, dentists and industry in general are looking for Hospital Corps veterans to fill positions in their organizations. Supplementing the services of an overworked and insufficient medical doctor population, these men and women of the military hospital corps can contribute much to the nation's health." The headquarters are at 1705 M Street N.W.

Four Drug Firms Receive Highest Corporation Federal Tax Refunds

Four drug firms received the largest federal tax refunds for the fiscal year 1945, according to the treasury list submitted to the House Committee on Executive Expenditures. The refunds were for overpayments by individuals, corporations and estates. Only seven taxpayers received more than $1,000,000 in refunds. Leading this group was the drug firm of Eli Lilly & Co., Indianapolis, with $2,239,065. The other three drug firms were Sharp & Dohme, Inc., Philadelphia, $1,856,744; Parke, Davis & Co., Detroit, $1,610,613, and the Upjohn Company, Kalamazoo, Mich., $1,146,074. The largest refund to an individual was $1,375,000 to Henry F. du Pont of Winterthur, Del.

Health Dangers Cited in Wheat-Saving Order

President Truman's order to conserve wheat for shipment to war devastated countries by providing dark bread for Americans was criticized by a Department of Agriculture official as being dangerous for thousands of persons who cannot eat roughage. It is claimed that provision will be required for people who must have white bread. Under the President's voluntary plan, 80 per cent flour extraction is to be made from wheat kernels, whereas 70 per cent has been normal for white bread. It is claimed that in 1917, when a similar bread campaign was tried in Europe, "11 million persons were casualties of intestinal upsets," and special certificates for white bread had to be issued.

U. S. P. H. S. Launches Research on Cause of Colds

Dr. R. E. Dyer, director of the U. S. Public Health Service National Institute of Health, who will supervise a prolonged research program to find the cause of the common cold, says that his investigators will keep at it until they have the answer. An initial expenditure of $50,000 is planned and it is proposed to find, in addition to the cause of colds, what will prevent and cure them. Dr. Dyer says this is the first "whole hearted attack on the cold problem. Colds cause more disability than any other single disease. We estimate that each day in this country an average of 250,000 persons are out of work because of colds."

Dangers of Farm Well Water Highlighted

Disease dangers in farm water wells which may be prevalent throughout the country are highlighted by the report of Dr. Nelson Podolnick, health officer of Fairfax County, Va., that the overflow from septic tanks has contaminated many wells supplying drinking water for Vienna, Va., and constitutes a grave health menace. His department has tested wells at the owner's request and found them unfit for human use. A complete house to house survey has never been made. One case of typhoid reported in Vienna last year was traced directly to a contaminated well.

Congressional Approval Expected of Federal Employee Health Bill

Favorable congressional action is expected soon on the federal employee health bill, which passed the House several months ago. Senator Sheridan F. Downey, Democrat of California, chairman of the Senate Civil Service Committee, thinks that a quick approval will be forthcoming in the Senate. The bill would allow federal agencies to set up small medical units to safeguard the health of employees.

Hearings Resume of Washington Hospital Center

The House District Committee will resume hearings Wednesday on the bill to erect a $20,000,000 hospital center in the nation's capital. The District of Columbia has opposed being obliged to contribute funds. It is hoped that the hearing will decide whether one third of the costs of site and construction should be repaid by contributing nonprofit private hospitals, by the District government, or whether the whole cost should be carried by the federal government.

Army Aerial Search and Rescue Program in Maryland

The Army's aerial search and rescue program will have its headquarters at Andrews Field Army Air Base in Maryland, adjacent to the national capital. The 62d AAF Base Unit will administer and coordinate the activities of nineteen rescue units throughout the United States. The program consolidates the elaborate search and rescue systems established at the outset of the war by each of the four continental air forces.

Veterans Administration to Hire 500 Hospital Clerks

The Veterans Administration plans to relieve its doctors of heavy "paper work" so that they can devote more time to patients. The agency has authorized its hospitals to hire 500 clerk-typists for work in hospital wards. The clerk-typists will answer telephones, direct patients to clinics, take dictation from physicians and nurses, type hospital records and handle other clerical duties. They will be hired in the district adjacent to the hospital served.

"Fugitive" Narcotics Recovered from Soldiers

Elmer L. Irey, chief coordinator of treasury law enforcement agencies, in his report to Treasury Secretary Vinson, reports that a considerable quantity of what is known as "dope fugitive" is being recovered from returning soldiers. As in the first world war, Allied officials are trying to corral all surplus narcotic supplies in wartorn areas, but quantities of such drugs are finding their way into the illicit United States and world trade.

Dr. J. Wayne McFarland Appointed Magazine Editor

Dr. J. Wayne McFarland has been appointed editor of *Life and Health*, a Seventh Day Adventist publication. He will serve as assistant secretary for health education of the medical department of the denomination and as a consulting physician in physical medicine at the Washington Sanitarium and Hospital.

Uncertain Future of Hospital Center Legislation

The future of the bill to create a $20,000,000 hospital center in Washington is uncertain, since the subcommittee yielded to District of Columbia demands that the District be exempted from sharing in the cost. The bill went to the full House District Committee "without recommendation."

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

Kansas Physicians' Service

After three years' study of various prepaid medical plans in operation in the United States and after enabling legislation had been passed by the 1945 Kansas legislature, all forms have been approved by the commissioner of insurance for the state of Kansas, from whom the certificate of authority was issued on December 11. This certificate, therefore, places Kansas Physicians' Service into operation.

Kansas Physicians' Service is a nonprofit corporation organized by the Kansas Medical Society. It exists for the purpose of enabling the people of Kansas to purchase subscription agreements entitling them to prepaid surgical and medical care. The details of the plan are as follows: Benefits to be included are surgical, in which all types of surgery may be covered immediately except that an eight months waiting period is required for tonsillectomies and adenoidectomies and for preexisting conditions. The second benefit is for obstetrics, which is available to all subscribers holding family benefits after eight consecutive months' membership. All accident cases involving fractures and dislocations are covered immediately and a maximum of $15 per year is allowable for diagnostic x-rays in accident cases only. The fourth benefit is for nonsurgical illness. Here, benefits begin on the fourth day of hospitalization and continue for thirty days thereafter.

The Kansas program is a combination of a service and indemnity plan whereby families with a yearly income of less than $2,400 will be given a service benefit and those making over that amount of money will receive an indemnity type of benefit. The decision as to which is to be applied rests with the doctor and the patient involved.

Free choice of physicians is assured, and participation in the plan is of course strictly voluntary.

The officers of the corporation are Dr. Barrett A. Nelson, Manhattan, president; Dr. John L. Lattimore, Topeka, vice president; Dr. W. M. Mills, Topeka, secretary-treasurer.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

District Meeting.—The Fifth Councilor District Medical Society was addressed in El Dorado, January 8, by Drs. Alton Ochsner, New Orleans, on "Carcinoma of the Lung: Early Diagnosis and Possibilities of Treatment," and William W. Scott, Chicago, on "The Urinary 17-Ketosteroids: The Rise of Our Knowledge of Their Origin and Excretion and Their Clinical Significance."

CONNECTICUT

Personal.—Dr. James C. Fox Jr., formerly clinical professor of neurology at Yale University School of Medicine, New Haven, has been appointed assistant medical director of the Hartford Hospital.——Dr. Albert W. Snoke, Rochester, N. Y., assistant director of Strong Memorial Hospital, has been named director of the New Haven Hospital.

Physician Honored.—Dr. D. C. Y. Moore, Manchester, was guest of honor at a dinner recently given by the Manchester Medical Association in recognition of his completion of fifty years in the practice of medicine. Dr. George A. F. Lundberg, Manchester, was toastmaster and, on behalf of the association, presented Dr. Moore with a gold chain and charm on which was inscribed "Fifty Years of Service as a Physician."

MASSACHUSETTS

Manfred Bowditch Goes to Saranac.—Mr. Manfred Bowditch, director, division of occupational hygiene, Massachusetts State Department of Labor since the establishment of the division, has joined the staff of the Saranac Laboratory at Saranac Lake, N. Y., as field director.

Francis Denny Retires.—Dr. Francis P. Denny retired recently as health officer of Brookline after many years of service to the community. Dr. Denny graduated at Harvard Medical School, Boston, in 1895 and started to practice in Brookline in 1897. According to the *New England Journal of Medicine* he established a bacteriologic laboratory in the city in 1899, the first in Massachusetts outside Boston, a tuberculosis pavilion as part of the Brookline contagious disease hospital in 1914 and a dental dispensary in 1915. He inaugurated immunization against diphtheria in 1923. For twenty-six years Dr. Denny was responsible for the quarterly publication of the *Brookline Health Bulletin*, a sheet that is delivered to every household in the town, printing regularly the results of milk examinations, the rating of restaurants and much other timely health advice. During his term of office Brookline was three times the winner of the health conservation contest sponsored by the United States Chamber of Commerce. Dr. Denny has been president of the Massachusetts Public Health Association, the Norfolk District Medical Society and the Brookline Anti-Tuberculosis Society and a member of the executive committee of the Massachusetts Tuberculosis League, now being its honorary vice president. The new health officer is Dr. Alfred L. Frechette, formerly state health officer of New Hampshire.

State Plan Provides for Segregation of Mentally Ill Children.—The Massachusetts Department of Mental Health has announced that the entire state, excepting Boston, has been established as a state hospital district for children 15 years of age or younger. Effective January 1, no children under 15 years of age are to be admitted to the following state hospitals: Boston, Danvers, Foxborough, Gardner, Grafton, Medfield, Northampton, Taunton, Westborough and Worcester. For the entire state children in this age group are to be admitted to the Metropolitan State Hospital, Waltham, with the exception that in the city of Boston children within this age group may be admitted to the Boston Psychopathic Hospital for a period of study only. Any case from Boston requiring continued care should be sent directly to the Metropolitan State Hospital. This new plan has been arranged in order that children may be properly segregated from mentally ill adults and, at the same time, receive adequate educational and recreational facilities. At the Metropolitan State Hospital a 100 bed unit has been set up to be used only for children. At present this will be used for psychotic children only, but it is planned that as soon as practical this unit will also be used for the purpose of studying and treating behavior problems in children. The unit has been arranged so that the psychotic children will be separated from the nonpsychotic study cases. The department has requested approval for the appointment of personnel for this unit consisting of a clinical director, psychiatric social worker, psychologist, junior clerk and stenographer, dietitian, two head nurses and an institutional school teacher.

MINNESOTA

Special Lectures.—The annual George Chase Christian Lecture in the field of cancer research or treatment was delivered at the University of Minnesota Medical School, Minneapolis, February 7 by Leonell C. Strong, Ph.D., associate professor of anatomy, Yale University School of Medicine, New Haven. His subject was "Mice, Men and Malignancy." Dr. Strong also gave a lecture February 6 on "Experimental Gastric Carcinoma in Mice."——Dr. T. Duckett Jones, associate professor of medicine, Harvard Medical School, Boston, gave the annual Clarence Martin Jackson Lecture at the University of Minnesota Medical School, Minneapolis, on rheumatic fever. The lecture is sponsored by the Phi Beta Pi medical fraternity.

Chiropractor Receives Suspended Sentence.—On November 26 Alfred Peterson, Duluth, chiropractor, received a suspended sentence of one year in the Minnesota Workhouse on condition that he surrender his medicines to be destroyed by the state and that he refrain from practicing healing in any manner anywhere in the state of Minnesota. Peterson agreed. He was arrested in Minnesota November 20 following an investigation by the Minnesota State Board of Medical Examiners and the Minneapolis police department, which disclosed that he claimed to have studied but held no license to practice any form of healing in the state. He was making regular trips to interview patients at hotels in Virginia, Hibbing, Grand Rapids, Brainerd, St. Cloud, Mora, Cambridge and Minneapolis and stated "I will give $1,000 to any medical association, any cancer research institution, or any one if they can prove that these testimonials are not true." In his literature Peterson claimed to have "discovered a cure for heart trouble, gallstones, ulcers, eczema, rheumatism, sinus, and that dreaded disease cancer." On one of his trips to Mora, Peterson made the mistake of furnishing the same medication to 7 patients with seven different ailments.

NEW YORK

Supreme Court Upholds Regulation of Board of Health.—In a decision announced recently, Justice Swezey of the New York Supreme Court denied the request of a joint committee of teachers' organizations in New York City for an injunction to restrain the New York City Board of Education and the New York City Department of Health from enforcing a regulation to require teachers to have a chest x-ray every two years. A regulation of the sanitary code, adopted by the city board of health, requires teachers and other employees who work in the schools and come in contact with the children to procure biennially a certificate from a physician or from the board of health based on a chest x-ray examination and certifying that such employee is free from active tuberculosis. The teachers contended that "the board of health was not empowered to enact such a regulation, that the regulation in addition to being beyond the scope of the board's powers was arbitrary, capricious and unreasonable and was contrary to the constitution and laws of the United States and the constitution and laws of the state of New York." It was contended further that "this regulation denied equal protection of the law to the persons directed to submit to such examination and was discriminatory in that it was applicable to no other person or group of persons who come in contact with children or whose work placed them in frequent contact with persons who might be infected with the disease." The board of health and board of education held that the regulation was a valid and reasonable exercise of the powers vested by law in the board of health to promulgate regulations for the security of life and health in the city and that it was not "arbitrary, capricious or discriminatory" (THE JOURNAL, June 2, 1945, p. 378).

New York City

The Harvey Lecture.—Dr. Stafford L. Warren, professor of radiology, University of Rochester School of Medicine and Dentistry, will deliver the fifth Harvey Society Lecture of the current series at the New York Academy of Medicine, February 21. Dr. Warren will speak on "The Story of Nagasaki."

NORTH CAROLINA

Bowman Gray Activities.—Bowman Gray School of Medicine at Wake Forest College, Winston-Salem, announces that Dr. Robert B. Lawson, assistant professor of pediatrics, returned from a year's leave of absence spent in virology at the George Williams Hooper Foundation, University of California. Dr. Lawson will resume his regular duties in the department of pediatrics, and Dr. C. Hampton Mauzy, recently discharged from the army, has resumed his position on the faculty as assistant professor of obstetrics and gynecology. His status has been changed from part time to whole time. Dr. John R. Williams Jr. has resigned as assistant professor of medicine to become associated with his father, Dr. John R. Williams Sr., in the practice of medicine in Rochester, N. Y. New appointments include Dr. Weston M. Kelsey, Westport, Conn., instructor in pediatrics. He has recently been discharged from the army, in which he obtained the commission of captain. William E. Cornatzer, Ph.D., assumed the position of assistant professor of biochemistry. Dr. Joseph T. Phillips Jr., Washington, is the new instructor in biochemistry.

OHIO

Health Museum Buys New Home.—The Cleveland Health Museum plans to hold a formal opening of its new home the last week in April. The building, formerly known as Garfield House and occupied by the Cleveland Speech and Hearing Center, will be used primarily to accommodate the Dickinson collection of sculptural models of human reproduction (THE JOURNAL, July 21, 1945, p. 893). In addition it

New home of the Cleveland Health Museum.

will augment space for other existing exhibits and new exhibits planned to cover mental hygiene, industrial health and a new series pointing the way to healthier and happier old age, furnish additional space for the health education laboratories, particularly the new plastics department, and provide increased facilities for teaching in the postgraduate field of health education. The newly acquired property consists of 2⅝ acres. The principal building is a terra cotta, stone and brick structure of thirty-nine rooms on four floors, including the basement. The Cleveland Speech and Hearing Center, which formerly occupied the building, has established new quarters at 11206 Euclid Avenue on the campus of Western Reserve University (THE JOURNAL, June 9, 1945, p. 453). The Cleveland Health Museum was incorporated in 1936 by a group of physicians, dentists, members of the Cleveland Health Council and lay persons to find and utilize popular methods of teaching the public basic facts about the human body and its care (THE JOURNAL, Dec. 7, 1940, p. 2012). Dr. Bruno Gebhard has been the director of the museum since it officially opened.

PENNSYLVANIA

The State's School Health Program.—The school health act recently enacted by the general assembly in Pennsylvania provides for a complete medical and dental examination of all children of school age and teachers and other school employees in the public and private elementary and secondary schools. An appropriation of $4,000,000 is provided to cover the cost of the program in the commonwealth for the next biennium. The examination of school children must be held every two years while they are members of the first, third, fifth, seventh and ninth grades. All school employees must have complete medical and dental examinations every two years. Not more than four medical and eight dental examinations per hour may be made by each examiner. The act shall not apply in cases of religious objection unless exemption would menace the health of other persons. The school child or employee may have the health or dental examination made by his private physician or dentist at his own expense on forms prescribed by the state, submitting the record of examinations to the local school health authorities. The local school district will receive from the state $1.50 for each medical examination and 75 cents for each dental examination.

Philadelphia

Plastic and Reconstructive Surgery Meeting.—The American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, Inc., will be addressed at the Philadelphia County Medical Society February 28 by Drs. Chevalier L. Jackson on "Plastic Surgery of the Larynx and Cervical Esophagus," David Myers on "Missile Injuries of the Mastoids, Sinuses and Maxillofacial Structures" and John V. Blady on "Maxillofacial Surgery in Cancer."

TEXAS

Fund for Needy Students.—The Medical Dames of the University of Texas Medical Branch, Galveston, has established a fund for the annual award of an appropriate prize to the most scholarly and needy first year student. The Medical Dames, which was organized by the wives of the medical students in the fall of 1944, plans to maintain an active program for the promotion of the welfare of the medical branch.

Research Council Created.—Dr. Robert M. Moore, professor of Surgery, University of Texas Medical Branch, Galveston, has been named chairman of a research council recently created at the school. The council was selected by the faculty to afford guidance and advice for staff members engaged in research. The program will assure coordination and uniformity of standards of research efforts. Dr. Moore developed the laboratory of experimental surgery at the school prior to entering the U. S. Army, where he was commanding officer of the 127th General Hospital.

Baylor Hospital Staff Reorganized.—The medical staff at Baylor University Hospital, Dallas, has been reorganized and a medical board created to supervise the teaching program at the hospital. The new board is composed of thirteen Dallas physicians appointed by the trustees as chiefs of various medical and surgical services. Its purpose will be to raise hospital standards, furthering medical instruction and medical research, direct the staff and organization and supervise the teaching program for residents and interns. It will also cooperate in the teaching of medical students at Southwestern Medical College, Dallas, and assist in dissemination of medical information to the public. Membership of the new board includes:

Dr. Earl F. Weir, Council Bluffs, Iowa, anesthesiology.
Dr. Henry M. Winans, Dallas, internal medicine.
Dr. Albert P. D'Errico, Dallas, neurologic surgery.
Dr. William K. Strother Jr., Dallas, obstetrics and gynecology.
Dr. Lester H. Quinn, Dallas, ophthalmology.
Dr. Felix L. Butte, Dallas, orthopedic surgery.
Dr. Lyle M. Sellers, Dallas, otolaryngology.
Dr. Joseph M. Hill, Dallas, pathology.
Dr. Robert L. Moore, Dallas, pediatrics.
Dr. Guy F. Witt, Dallas, psychiatry and neurology.
Dr. Frank M. Windrow, Ann Arbor, Mich., radiology.
Dr. Harry Cochran, Dallas, surgery.
Dr. Alfred I. Folsom, Dallas, urology.

Officers of the new board are Dr. Winans, chairman, Dr. Folsom, vice chairman, and Dr. Hill, secretary-treasurer. The board has selected the staff which will carry on the active teaching program. All other members of the Dallas County Medical Society will be included on the courtesy list. These staff appointments, presented on unanimous recommendation of the medical board, have been approved by the trustees for the year ending December 31. The staff will be composed of four classifications, as follows:

Consultants: Men who will not take an active part in direction of the program but who, because of their outstanding qualifications and experience, will be looked to for advice and counseling.

Attending Physicians: Men who have limited their work to one of the certified specialties and who have contributed much effort and interest to Baylor's teaching program in the past. From this group will be drawn most of the teachers and clinicians for the teaching program.

Associate Attending Physicians: Those who are qualified as specialists by their certifying boards or who have equivalent qualifications and who have shown much interest in the teaching program but who are less experienced professionally or in the community.

Junior Attending Physicians: Those just out of residency or internship, now working toward certification by their specialty boards, who wish to devote time toward assisting in the teaching program. As they gain experience these men, like the associate attending physicians, will be advanced to the higher classifications, thus building a reservoir of medical teaching talent for future development of the program.

VERMONT

Personal.—Dr. Paul K. French, Burlington, who recently retired from the Army Medical Corps with the rank of lieutenant colonel, has been promoted from associate professor to professor of clinical medicine at the University of Vermont College of Medicine, Burlington.——Dr. Stewart Ross, Rutland, has been elected a trustee of Middlebury College for a period of five years starting July 1.

Society News.—On January 15 Dr. William E. Brown, dean, University of Vermont College of Medicine, Burlington, addressed the Windsor County Medical Society at the Woodstock Inn, Woodstock, on the establishment of a state medical center at Burlington, built around the University of Vermont Medical School, by which it is hoped to provide specialized and clinical work for the benefit of Vermont residents and doctors. He discussed the same project before the Rutland County Medical Society and the Rutland Hospital staff at the Hotel Berwick, January 17.

Activities of State Medical Society.—During the past year the Vermont State Medical Society created the position of executive secretary and named Mr. John W. Brownlee as the first incumbent. Offices of the society have been set up at 128 Merchants Row, Rutland. The society also started the publication of a monthly *News Letter*, which carries discussions of national and local interest. The publication of a state medical journal is now under consideration. Officers of the state medical society chosen at a recent meeting of the house of delegates of the society include Drs. Frank C. Angell, Randolph, president-elect; Leon E. Sample, St. Albans, president; Ellsworth L. Amidon, Burlington, vice president; Benjamin F. Cook, Rutland, secretary, and David Martin, Essex Junction, treasurer. The next annual session will be held in October, the exact dates to be determined later.

VIRGINIA

Changes in Health Personnel.—Dr. William Grossman, Richmond, director of the bureau of communicable disease control, returned to the Virginia State Department of Health from the military service as of January 1. Dr. Donald K. Freedman, Washington, Surgeon (R), U. S. Public Health Service, who was on loan to the Virginia State Department of health and who has been acting as health officer of the Peninsula Health District, was withdrawn by the public health service effective Dec. 8, 1945.

Spring Graduate Course.—The Gill Memorial Eye, Ear and Throat Hospital announces its spring graduate course in Roanoke April 1-6. The course will cover ophthalmology, otology, rhinology, laryngology, faciomaxillary surgery, bronchoscopy and esophagoscopy. Among the participants in the course will be:

Dr. Louis H. Clerf, Philadelphia.
Dr. William R. Graham, Richmond.
Dr. George P. Guibor, Chicago.
Dr. William F. Hughes Jr., Baltimore.
Dr. James R. Jaeger, Philadelphia.
Dr. Merrill J. King, Boston.
Dr. Ferdinand L. P. Koch, New York.
Dr. Perrin H. Long, Baltimore.
Dr. James H. Maxwell, Ann Arbor, Mich.
Vice Admiral Ross T. McIntire, Washington.
Dr. Paul M. Moore Jr., Cleveland.
Dr. Werner Mueller, Boston.
Dr. Frank Payne, New York.
Dr. Charles A. Perera, New York.
Dr. Emund B. Spaeth, Philadelphia.
Dr. Isaac S. Tassman, Philadelphia.
Selman A. Waksman, Ph.D., New Brunswick, N. J.

WEST VIRGINIA

Personal.—At a meeting of the Public Health Council of West Virginia in Charleston, January 7, Dr. Walter E. Vest, Huntington, was reelected president for a fifth consecutive two year term; he has been a member of the council since 1933 and has served as its president since 1937.——Dr. Frederick C. Kluth, Charleston, U. S. Public Health Service, who has served as venereal disease control officer for Charleston and Kanawha County for the past three years, has been transferred to Columbus, Ohio, where he is in charge of a rapid treatment center similar to the Kanawha Medical Center, South Charleston.

Confidential Report Form for Tuberculosis.—A new confidential report form to be used for reporting tuberculosis has been adopted by the state health department and distributed to all local health departments. The new form replaces the old form, CD-8, which has been in use for several months. Local health departments are requested to report all new cases of tuberculosis on the new form and submit them weekly to the Collaborating Epidemiologist, State Health Department. The reports are to be treated as confidential and mailed under cover. While the card is at present used only by local public health departments, it is probable that the state health department will ask that the form be approved by the West Virginia State Medical Association so that it can be used by doctors over the state. The new form has already been approved by the Public Health Council.

Payment of Doctors' Bills.—A change in the regulations concerning the submission by doctors of bills for services rendered has been announced by Mr. E. B. Pennybacker, state compensation commissioner, effective immediately. All bills must now be submitted in duplicate, and medical reports must be filed before or at the same time bills are rendered. This change in procedure will protect the doctor who submits his bills within the prescribed ninety day limit, notwithstanding any delay in having the bill approved within that time by the subscriber or employer. The workmen's compensation act was amended at the 1943 session of the legislature so as to require the submission of bills within ninety days after services are rendered. Frequently the bills, which have to be approved by the employer, have not been returned to the compensation commissioner before the expiration of the time limit, which has resulted in a great deal of confusion, and delay in the payment of such bills. In the future, if no objection to the payment of the bill is received by the commissioner from the employer within fifteen days after it is submitted by the doctor, payment will be authorized to the same extent as if the bill had been regularly approved.

WISCONSIN

Physicians Honored.—Dr. George E. MacKinnon, who has practiced in Prentice and the surrounding area for thirty years, was honored when Price County set aside November 15 as "Dr. MacKinnon Day." The celebration included a parade, a banquet, a musical program and a community dance. Dr. MacKinnon graduated at Queen's University Faculty of Medicine, Kingston, Ont., in 1914. He started in practice in Tripoli in 1915, going to Prentice the following year.——Dr. Mina B. Glasier, Bloomington, enjoyed a community three day celebration of her eighty-sixth birthday, which was November 5. Dr. Glasier, an honorary member of the state medical society, was secretary of the Grant County Medical Society for thirty-five years, its president for one year, a member of the state board of health for fourteen years and recipient of the council award of the state medical society in 1932, according to the state medical journal. She has practiced in Bloomington for sixty-one years.

ALASKA

Personal.—Dr. David M. Cowgill has been appointed district health officer with the Alaska Territorial Department of Health, with offices in Anchorage. He was formerly health officer in Amarillo, Texas.

GENERAL

Campaign Against Noise.—The National Noise Abatement Council, in announcing its 1946 program, urges reestablishment of noise control on the agenda of all city planning commissions. The council will present noise abatement achievement awards to five cities in the United States which show the most conclusive evidence of noteworthy accomplishments of the elimination of needless street noise and in the reduction of noise in industry, in the office and in the home.

Meeting of Pediatric Board.—At the annual meeting of the American Board of Pediatrics in Atlantic City, Dec. 6, 1945, Drs. C. Anderson Aldrich, Rochester, Minn., was elected president, Donovan J. McCune, New York, vice president, and Lee F. Hill, 3309 Forest Avenue, Des Moines, Iowa, secretary-treasurer. On and after May 1, the application fee for the American Board of Pediatrics will be $100. The next written examination of the board will be held locally under a monitor, March 22. Oral examinations will be held in Cleveland April 27-28 and, if sufficient applications are received to warrant this examination, in San Francisco July 1-5.

Student Loan Fund for Work in Gynecology.—The woman's auxiliary of the Southern Medical Association at its recent annual meeting in Cincinnati voted to use its Jane Todd Crawford Memorial Fund as a student loan fund to help medical students or physicians from the South desiring to do post-graduate work in gynecology. The recipients are to be recommended by the dean of the medical school where they are in attendance or by the local medical society of which they are members. Approval was to be submitted by a committee of three elected by the executive board of the Woman's Auxiliary of the Southern Medical Association. The fund honors the first woman to submit to an ovarian operation, which was performed by Dr. Ephraim McDowell. Jane Todd Crawford is also honored annually with a special day named for her.

while they are members of the first, third, fifth, seventh and

cal teaching talent for future development of the program.

New Publications.—The Washington Institute of Medicine announces the publication of the *Quarterly Review of Pediatrics*, beginning with the February issue. Dr. Irving J. Wolman, Children's Hospital, Philadelphia, 1740 Bainbridge Street, Philadelphia 46, is the editor in chief. In addition, sixteen members comprise the editorial board. The institute also announces that it will bring out in March a *Quarterly Review of Urology*. Dr. Hugh J. Jewett, Baltimore, is the editor in chief. The object of this quarterly is to present a panoramic picture of the current world progress in urology through the publishing of abstracts and the indexing, as far as possible, of everything that has appeared in the world medical literature pertaining to urology. Henry J. Klaunberg, Ph.D., is president of the Washington Institute of Medicine, 1720 M Street N.W., Washington 6.

Record Set for Hospital Births.—Ninety-one out of one hundred of the babies born under the emergency maternity and infant care program in 1944 were born in hospitals as compared with seventy-six out of one hundred for all infants in that year, according to the Children's Bureau, U. S. Department of Labor, January 27. In ten states the record was even more remarkable, with less than 2 per cent of the births under the government program being home deliveries. Even in states where the percentage of home deliveries of such births was highest, it was far below the percentage for all infants. In Mississippi, for instance, of all births only 3 out of 10 took place in hospitals, whereas 7 out of 10 servicemen's babies cared for under the program were hospital born. It is estimated that almost $40,000,000 from federal funds has been paid to hospitals from state agencies.

Robert Goodhart Named Director of the Vitamin Institute.—Dr. Robert S. Goodhart, Forest Hills, N. Y., since March 1943 chief of the industrial feeding program division, War Food Administration, U. S. Department of Agriculture, has been named scientific director for the Institute for Vitamin Research, Inc. Dr. Goodhart recently returned from Japan, where he studied nutritional problems of the Japanese people. He expects to complete this project by March 1, when he will assume his new duties. The Institute for Vitamin Research was formed at a meeting at the Waldorf Astoria, New York, Jan. 29, 1945 (THE JOURNAL, Feb. 17, 1945, p. 414). It maintains headquarters in the office of its secretary, Henry K. Urion, of O'Connor and Farber, its attorneys, 120 Broadway. Its purposes are to maintain continuing research on "problems in nutrition, particularly as they relate to vitamins, to the end that the health and welfare of mankind may be improved through better nutrition." The institute proposes to make grants to individuals and institutions for research and to provide scholarships and fellowships. The instituite also will study and adopt "proper standards for the manufacture and sale of vitamin products." Dr. Goodhart graduated at New York University College of Medicine-Bellevue Hospital Medical College in 1934.

Artificial Limb Program for Soviet Union.—The American Society for Russian Relief, Inc., has launched a million dollar program to obtain needed material for the rehabilitation of amputation cases in the Soviet Union. The program includes the attempt to equip a network of hospitals specializing in the care of amputees in the Soviet Union and a central factory with regional workshops in various Soviet Republics to manufacture artificial limbs. Everything will be supplied, from thousand dollar turret lathes and disk grinders to laundry equipment, surgical instruments and even doctors' and nurses' uniforms. Plans call for a central hospital in Moscow to be supplied with 2,000 beds, laundry equipment to handle 23,500 pounds of wash a day and all necessary medical equipment, including a complete chemical research laboratory. Attached to this hospital will be an artificial limb factory to be equipped with American machines and basic raw materials for the manufacture of limbs, including pressed felt, vulcanized fiber sheets, finishing lacquers, glues and copper nails. Along with basic machinery such as drill presses, duplicating lathes, welding machines, riveting machines, electric drills and sewing machines, the agency also is shipping hand tools, such as files, hammers, hack saws, nails and industrial electric vacuum cleaners for factory and hospital use. The project also includes equipping of regional hospitals in the various Soviet Republics with their own artificial limb work shops. After the initial operation at the central hospital and manufacture of the desired limb at the factory, the patient will be sent to the regional hospital nearest his home. Here he will convalesce and the final fitting of the limb will be made. An announcement stated that a number of amputation cases in the Soviet Union is so great that it has not yet been totaled and that civilians, including children, are still being maimed by exploding mines so cunningly buried that they cannot always be detected. The American Society for Russian Relief, formerly Russian War Relief, Inc., has its headquarters at 5 Cedar Street, New York 5.

Fugitive Physician Sought on Abortion Charge.—Dr. Louis G. Small, who on April 1, 1942 was arrested on the charge of abortion, is being sought by the District Attorney's Office of the County of New York. Small was indicted for and convicted of nine separate felonies of abortion and a general conspiracy to maintain a public nuisance, to wit, an abortion mill. After his conviction he was admitted to $12,000 bail pending appeal, but when the judgment of conviction was affirmed he forfeited his bail and took refuge in the state of Georgia. According to the District Attorney's Office, Small sought to defeat extradition proceedings by having himself arrested by a local sheriff on the charge of practicing medicine without a license in Georgia. The District Attorney's Office of the County of New York succeeded in establishing the right to his custody, but the physician defeated extradition by "escaping" on March 12, 1944 from the custody of the local sheriff charged with the duty of detaining him. The District Attorney's Office is of the opinion that while it has no record of Small's present whereabouts he is practicing medicine or operating an abortion mill somewhere within the United States. Small is said to travel usually with his wife, Florence Essl Small, who is described as being about 5 feet 7 inches in height and weighing 120 pounds. She is said to have blue eyes, blond hair with fair complexion and usually acts as a model and commercial artist. Small's conviction in New York for operating an abortion mill with two other physicians was reported in THE JOURNAL May 15, 1943 and his arrest in Georgia Dec. 4, 1943. On March 15, 1944 the Maryland State Board of Medical Examiners revoked a license obtained by him in

Louis G. Small, aged 43, height 5 feet 4 inches, weight 150 pounds, brown eyes, black hair, dark complexion, small black mustache.

December 1942. Small was born in Russia April 17, 1902. He obtained his premedical education at New York University and graduated at the University of Arkansas School of Medicine, Little Rock, in 1927.

Government Services

Hospital Leased to State of Georgia

The Surplus Property Administration has authorized the Federal Works Agency to negotiate a lease for five years with the state of Georgia for the Battey General Hospital at Rome, Ga. The lease will carry an option to purchase later. The hospital installation, recently declared surplus by the War Department, consists of approximately 160 acres of government owned land improved with fully equipped hospital buildings and various facilities necessary for the operation of the hospital. The state of Georgia declared that it had urgent need for increased hospital facilities for a tuberculosis sanatorium. It declared that its present state tuberculosis sanatorium will be converted into a mental institution or a female prison, both of which are urgently needed by the state. The Federal Works Agency has been authorized to issue immediately a temporary occupancy permit. Following a ten day notice of availability to all government agencies, and in the absence of an acceptable proposal from a holder of a higher priority or a proposal from any state or local government having a priority equal to that of the state of Georgia, the Federal Works Agency will negotiate the terms of the proposed lease.

Deaths

Alpheus Felch Jennings ✠ Detroit; Harvard Medical School, Boston, 1910; born in Detroit June 22, 1884; assistant professor of clinical medicine at the Wayne University College of Medicine; extramural lecturer in postgraduate medicine at the University of Michigan; specialist certified by the American Board of Internal Medicine; member of the American Clinical and Climatological Association; fellow of the American College of Physicians; recently finished a term as chairman of the board of trustees of the Wayne County Medical Society; medical officer at Selfridge Field during World War I and, after serving as assistant chief of medical service at Camp Custer, ordered overseas, where he served with Evacuation Hospital number 21 in France; served with various units and discharged in May 1919 with the rank of major; consultant in medicine at the U. S. Marine Hospital; president of the board of trustees and chief of staff of the Charles Godwin Jennings Hospital, where he died November 16, aged 61, of carcinoma of the bladder and bilateral hydronephrosis.

Walter Scott Franklin ✠ Santa Barbara, Calif.; Cooper Medical College, San Francisco, 1898; clinical professor of ophthalmology emeritus at the University of California Medical School in San Francisco, where he was on the staffs of the University of California Hospital and the Shriners' Hospital for Crippled Children; specialist certified by the American Board of Ophthalmology; member of the Western Ophthalmological Society and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; on the staffs of the Santa Barbara General Hospital, St. Francis Hospital and the Santa Barbara Cottage Hospital, where he died January 2, aged 67, of uremia due to hypertension.

Oliver V. Schuman ✠ Columbia City, Ind.; Chicago Medical College, 1889; honorary member of the Indiana State Medical Association; formerly county and city health officer; served on the advisory board during the construction of the Indiana State Sanatorium at Rockville, where he served as a member and president of the board; for many years vice president of the Farmers Loan and Trust Company; helped to organize the woolen mills in Columbia City, serving on the board of directors from the beginning of the mill until his death; died October 23, aged 81, of coronary occlusion and diabetes mellitus.

Frederick Jennings Smith, Kankakee, Ill.; Miami Medical College, Cincinnati, 1905; member of the American Medical Association, Kansas Medical Society and the American Psychiatric Association; served during World War I; at one time medical inspector of the city schools in San Diego and on the staffs of the U. S. veterans hospitals in North Little Rock, Ark., and Palo Alto, Calif.; formerly assistant physician in neuropsychiatry at the Watertown State Hospital in East Moline; on the staff of the Kankakee State Hospital; died October 4, aged 65, of heart disease.

Laura Elizabeth McClure ✠ Lansdowne, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1928; clinical associate professor of pediatrics at the Woman's Medical College of Pennsylvania; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; medical director of the Babies' Hospital and on the staffs of the Hospital of the Woman's Medical College and St. Christopher's Hospital for Children, all in Philadelphia; died in New Wilmington October 17, aged 41, of carcinoma of the ovary and broad ligament.

Joseph Schapiro ✠ Union City, N. J.; Columbia University College of Physicians and Surgeons, New York, 1905; member of the American Orthopsychiatric Association; for many years medical director of the Union City public schools; at one time school physician; served overseas during World War I; on the courtesy staff of the Medical Center of Jersey City; on the staff of the North Hudson Hospital, Weehawken; senior clinician of the mental hygiene clinic of the Mount Sinai Hospital in New York; died November 13, aged 65, of coronary thrombosis.

Jacob Thorkelson ✠ Butte, Mont.; College of Physicians and Surgeons, Baltimore, 1911; member of the American Association of Anatomists, Aero Medical Association and the Association of Military Surgeons of the United States; served as surgeon to the Montana State Hospital at Warmsprings; visiting surgeon to St. Ann's Hospital in Anaconda and St. James Hospital; lieutenant commander, medical corps of the U. S. Naval Reserve, not on active duty; formerly a Republican congressman from Montana; died November 20, aged 69.

Charles Bee Alexander, Alhambra, Calif.; Barnes Medical College, St. Louis, 1907; served in the intelligence service during World War I; on the staffs of the Garfield Hospital, Monterey Park, Los Angeles General Hospital and the Alhambra Hospital, where he died October 21, aged 70, of cerebral hemorrhage and diabetes mellitus.

George Anderson, Alpha, Ohio; College of Physicians and Surgeons, Baltimore, 1891; died October 19, aged 78, of uremia.

John Frederick Bening, Clarinda, Iowa; University of Nebraska College of Medicine, Omaha, 1904; member of the American Medical Association; past president of the Page County Medical Society; on the staff of the Clarinda State Hospital; died October 13, aged 69, of coronary thrombosis.

Charles James Berger, Pottsville, Pa.; Medico-Chirurgical College of Philadelphia, 1903; died September 4, aged 76, of bronchopneumonia and arteriosclerosis.

Chester Abram Brink, Pleasanton, Neb.; College of Physicians and Surgeons of Chicago, 1893; served as a member of the Valley County Board of Health, coroner of Valley County and physician to the Valley County Insanity Board; died October 21, aged 75, of cerebral hemorrhage and senility.

Samuel Slaughter Caruthers, Duck Hill, Miss.; Memphis (Tenn.) Hospital Medical College, 1905; served during the Spanish-American War and World War I; died in Pacific Grove, Calif., November 12, aged 69, of coronary thrombosis.

Lorin Cone Collins ✠ Chicago; Northwestern University Medical School, Chicago, 1900; major in the medical corps of the U. S. Army during World War I, serving as post surgeon at Chanute Field; formerly on the staffs of the Children's Memorial and Lutheran Memorial hospitals; member of the associate staff of the Grant Hospital, where he died December 25, aged 69, of carcinoma of the prostate.

Thomas James Connolly, Crescent Springs, Ky.; Bennett Medical College, Chicago, 1913; died in St. Elizabeth Hospital, Covington, September 26, aged 71, of Parkinson's syndrome.

Charles Jacob Dietrich ✠ Reading, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; member of the Radiological Society of North America, Inc.; on the staff of St. Joseph's Hospital; died September 10, aged 66, of hypertension and arteriosclerosis.

James Irenaeus Doyle ✠ Rapid City, S. D.; Loyola University School of Medicine, Chicago, 1924; on the staffs of St. John's, McNamara and Black Hills General hospitals; died October 17, aged 50, of coronary occlusion.

Philip P. Fisher ✠ Sharon, Pa.; College of Physicians and Surgeons, Baltimore, 1881; died September 22, aged 89, of cardiovascular disease.

Robert Alexander Fraser, New York; Trinity Medical College, Toronto, Ont., Canada, 1903; became medical director in 1913 of the New York Life Insurance Company, serving as chief medical director from 1934 to Sept. 1, 1945; past president of the Association of Life Insurance Medical Directors; died in Greenwich, Conn., November 1, aged 67, of heart disease.

John Philip Greene, Larchmont, N. Y.; Bellevue Hospital Medical College, New York, 1896; served as health officer and police and fire surgeon in Mamaroneck; died in the Grasslands Hospital, Valhalla, November 4, aged 71, of congestive heart disease.

Alice Alloway Hand, Cleveland Heights, Ohio; Western Reserve University School of Medicine, Cleveland, 1944; interned at the Metropolitan Hospital in New York; died in a hospital at Columbus October 30, aged 26, of Hodgkin's disease.

George Arthur Hawkins-Ambler, San Francisco; L.R.C.P., Ireland, 1885 M.R.C.S., England, 1889 and F.R.C.S., Edinburgh, Scotland, 1891; died in the San Francisco Hospital October 25, aged 83, of cerebral hemorrhage and arteriosclerotic heart disease.

Joseph Paul Hennerich Jr., St. Louis; Washington University School of Medicine, St. Louis, 1913; died October 16, aged 61, of coronary thrombosis.

Andrew Jackson Kellam, Canton, Texas; Baylor University College of Medicine, Dallas, 1913; died October 23, aged 65, of heart disease.

John Randal Knight, Eddy, Texas; Vanderbilt University School of Medicine, Nashville, 1893; for many years local bank president; died October 29, aged 77, of generalized arteriosclerosis.

Eugene Ross Linklater ✠ Kenmore, N. Y.; University of Buffalo School of Medicine, 1905; served during World War I; health officer; formerly school physician; died in the Millard Fillmore Hospital, Buffalo, October 18, aged 62, of cerebral hemorrhage.

Ross George Loop ✠ Elmira, N. Y.; University of Buffalo School of Medicine, 1897; fellow of the American College of Surgeons; served during World War I; during World War II in charge of the emergency medical division for civilian defense in Chemung County and associated with the Procurement and Assignment Service; consulting surgeon at the Arnot-Ogden and St. Joseph's hospitals in Elmira and Tioga County General Hospital in Waverly; died October 19, aged 69, of arteriosclerosis and heart disease.

Donald Leo Maddox, Philadelphia; Temple University School of Medicine, Philadelphia, 1917; died in the Norristown (Pa.) State Hospital September 2, aged 56.

Martin Teasley Maxwell, Robbinsville, N. C.; Southern Medical College, Atlanta, 1885; died in the Angel Hospital, Franklin, October 15, aged 85, of influenza and heart disease.

Charles W. Merkel, Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; also a graduate in pharmacy; died in Harriman, Tenn., October 28, aged 75, of angina pectoris.

Robert Hyndman Miller, Haleyville, Ala.; Chattanooga (Tenn.) Medical College, 1902; member of the American Medical Association; died October 17, aged 71, of carcinoma of the intestine.

Arthur T. Monismith ✠ Fort Lupton, Colo.; Denver and Gross College of Medicine, 1904; died in St. Luke's Hospital, Denver, September 27, aged 65, of cerebral hemorrhage.

Harry Alfred O'Neal, Brookville, Pa.; University of Pittsburgh School of Medicine, 1911; died in the Warren (Pa.) State Hospital September 20, aged 59, of cardiorenal disease and diabetes mellitus.

Joseph Alexander Pinckard, Minneapolis; Missouri Medical College, St. Louis, 1896; died in the Kahn Memorial Hospital, Marshall, Texas, October 14, aged 75, of coronary occlusion.

Charles Teed Pollard ✠ Montgomery, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1897; member of the American Medical Association; served during the Spanish-American War and World War I; died in the Hubbard Hospital November 4, aged 73, of amebic dysentery.

Aba Reiss, Philadelphia; Medizinische Fakultät der Universität Wien, Vienna, Austria, 1901; died in St. Luke's and Children's Medical Center September 2, aged 67, of coronary occlusion.

Harold Fuller Sawyer ✠ Pleasant Ridge, Mich.; Detroit College of Medicine and Surgery, 1927; interned at the Grace Hospital in Detroit; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve on Dec. 18, 1942; service terminated Aug. 26, 1943; on the staffs of the Grace and Woman's hospitals in Detroit; died October 8, aged 43, of coronary thrombosis.

Bernhard Harvey Schmidt ✠ Davenport, Iowa; Rush Medical College, Chicago, 1897; life member of the Iowa State Medical Society; past president of the Scott County Medical Society; formerly city physician; served on the staff of the Mercy Hospital, where he died October 18, aged 70, of coronary thrombosis.

Mary Dorothea Skinner, Seattle; University of Oregon Medical School, Portland, 1903; died October 20 of exhaustion and hemiplegia.

Herbert Leonel Taylor ✠ Portsmouth, N. H.; Jefferson Medical College of Philadelphia, 1902; fellow of the American College of Surgeons; past president of the Portsmouth Medical Society, Rockingham County Medical Society and New Hampshire Medical Society; bank director; member and past president of the staff of the Portsmouth Hospital; consulting surgeon, York Hospital, York Village, Maine; died October 24, aged 68, of brain tumor.

Frederick William Van Lengen, Syracuse, N. Y.; Syracuse University College of Medicine, 1898; member of the American Medical Association; served as demonstrator of anatomy at his alma mater; on the staff of the People's Hospital; for many years physician for the Syracuse University football teams; served as president of the alumni association of the Syracuse University College of Medicine; died October 15, aged 71, of coronary occlusion.

Joseph Clinton Vaughan, Rich Square, N. C.; Medical College of Virginia, Richmond, 1915; member of the American Medical Association; served during World War I; died in the Duke Hospital, Durham, October 13, aged 56, of chronic nephritis.

Robert Mayhue Ware ✠ Fitzgerald, Ga.; University of Georgia Medical Department, Augusta, 1902; medical director of the Fitzgerald Hospital; died October 23, aged 68.

John B. Weston, Hemet, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1878; served as mayor of Hemet and member of the city park commission; honorary park commissioner; in recognition of his philanthropy and interest in beautifying the community, the city council named the park in his honor; at one time health officer of Duluth, Minn.; died September 7, aged 91, of carcinoma of the gallbladder.

Adam George Youngman ✠ St. Louis; St. Louis University School of Medicine, 1912; on the staffs of St. Anthony's Hospital and the Lutheran Hospital, where he died October 20, aged 65, of coronary thrombosis.

DIED WHILE IN MILITARY SERVICE

Charles John Allen ✠ Lieutenant Commander, U. S. Navy, Milwaukee; Marquette University School of Medicine, Milwaukee, 1939; interned at the Milwaukee Hospital; entered the U. S. Navy as a lieutenant (jg) in July 1940; served as surgeon aboard a destroyer for twenty-two months; transferred to the Naval Hospital in Corona, Calif.; died Feb. 1, 1944, aged 31, as the result of ship collision at sea while attached to the U. S. S. *Washington.*

John Newton Dunn ✠ Blackstone, Va.; Medical College of Virginia, Richmond, 1931; at one time associated with the Civilian Conservation Corps in the West; began active duty as a captain in the medical corps, Army of the United States, on March 11, 1942; promoted to major; served as chief surgeon with a fighter group in England and Russia; died in England Sept. 3, 1945, aged 43, of coronary occlusion.

Victor Gang, New York; Rush Medical College, Chicago, 1937; interned at the University of Chicago Clinics in Chicago and Lenox Hill Hospital; served a residency at the Murray Hill Hospital; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on Feb. 9, 1941; promoted to lieutenant and lieutenant commander; drowned in the Philippine Islands Sept. 3, 1945, aged 32.

Abraham Gellman, Brooklyn; Long Island College of Medicine, Brooklyn, 1940; interned at the Montefiore Hospital for Chronic Diseases in New York and the Kings County Hospital in Brooklyn, where he served a residency; began active duty in the medical corps, Army of the United States, as a first lieutenant on Aug. 22, 1942; later promoted to captain; died in Luzon Feb. 11, 1945, aged 28, of injuries received when his gun accidentally discharged.

Joseph Rawlins Ginther ✠ Norristown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1929; member of the American Medical Association; interned at the Homeopathic Medical and Surgical Hospital and Dispensary in Pittsburgh; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve on Dec. 21, 1942; stationed at the 12th Naval District base in San Francisco; died July 1, 1945, aged 41, of acute cirrhosis of the liver.

Joseph Nash, New York; University and Bellevue Hospital Medical College, New York, 1926; member of the American Medical Association; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery; assistant professor of clinical surgery at his alma mater, now known as the New York University College of Medicine; on the staff of the Bellevue Hospital; house physician at the Hotel Plaza; author of "Surgical Physiology," a textbook published in 1942; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on June 9, 1926; began active duty in the same rank on Aug. 1, 1941; assistant chief of the surgical service in the Lovell General Hospital in Fort Devens, Mass.; promoted to captain and major in the medical corps, Army of the United States, in 1942; in December 1943 went overseas with the rank of lieutenant colonel; appointed chief of the surgical service of the Ninetieth General Hospital in England; arriving in Normandy early in the invasion of Europe, served as a surgical consultant of the 819th General Hospital and as surgical chief of the Ninetieth General Hospital Unit; died in Germany Nov. 8, 1945, aged 43, of injuries received in an aircraft accident.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 12, 1946.

London's War Ordeal: Comparison of Vital Statistics with Those of New York

The report on the health of the county of London for 1944 has just been published. The term "county of London" applies only to the inner half of the metropolis, which is administered by the London County Council. The population of greater London exceeds 8 million, but that of the county was only a little over 4 million in the last prewar year of 1918. During the war it fell to 2½ million. For the first time since the outbreak of the war, population statistics have been allowed to be published. Mothers, children and hospital patients were evacuated to safer districts as the attack developed. The total number of civilians killed in London during the war was 17,811. In spite of the ordeal of bombing, the health rate in 1944 remained satisfactory. The birth rate was 18.1 and the death rate 16.7 per thousand. The infant mortality was 51 per thousand live births. Before the war there were 814,498 dwellings. Of these 709,518 were affected by the bombing, about 70,000 were completely destroyed and 56,000 were rendered uninhabitable and 66,000 seriously damaged. The London ambulance service conveyed to hospitals or first aid posts 46,709 persons injured by bombing. During the war there were 660 bombing incidents at the County Council's 100 hospitals, of which 17 had to be evacuated. Out of a total of 1,200,000 patients admitted during the war period 257 were killed in air raids and 5,000 hospital beds were destroyed.

The report makes an interesting comparison between the vital statistics of London and of New York. The population of New York is about a million less than that of greater London but about thrice that of the county of London. The birth rate of London in 1944 was 18.1 against 16 in New York. In London the death rate was about 50 per cent higher and the infant mortality 70 per cent higher than in New York. The maternal mortality was about the same for the two cities. Diphtheria is on the decrease in both cities, but, allowing for difference of population, the disease is fifteen times more prevalent in London. The mortality from appendicitis is nearly the same. In London cancer mortality is about 40 per cent higher. The mortality from diabetes in London is only 25 per cent of that in New York, from cancer about 40 per cent higher, from pulmonary tuberculosis about twice and from other forms between three and four times that in New York.

The European Drug Trade

During the war the importation of large quantities of German drugs ceased, and British manufacturers produced the more important ones. Seven of the large British firms which manufacture drugs have formed a company which hopes to supply 200 million new customers on the European continent formerly supplied by the German chemical trust I. G. Farbenindustrie. The new firm is the British-European Pharmaceutical Company, Ltd. Besides supplying Europe with the products marketed before the war, the British company will export many new drugs produced during the war by British chemists.

The Diagnosis of Cancer

In the House of Commons Mr. Somerville Hastings, laryngologist, asked the minister of health to provide lectures for general practitioners on the early recognition of cancer. He stated that there are about 70,000 deaths annually from cancer and that a large proportion of cancer patients obtain specialist treatment too late. Mr. Hastings reported that where such lectures have been instituted they have been much appreciated and well attended by general practitioners. Mr. Aneurin Bevan, minister of health, replied that the purposes sought by Mr. Hastings could perhaps be best attained by encouraging early and frequent consultations between general practitioners and specialists in the work of diagnosis and treatment. Organized arrangements are now being developed under the Cancer Act of 1939 as far as present circumstances permit.

THE NETHERLANDS

(From Our Regular Correspondent)

AMSTERDAM, Jan. 20, 1946.

War Sequels

The Netherlands of 1940 were thoroughly organized, well equipped with most necessities and, in comparison with other European countries, at a high level of social well being. There were nearly 9 million inhabitants, with a good average education. Ten universities and high schools provided professional education and information in science. Modern industries kept their staffs in touch with improvements. In the war large parts of cities and towns were destroyed, among them the Hague, Rotterdam, Groningen, Arnhem, Middelburg, Nijmegen, Vlissingen and Venlo, either by action or by attempts to transform these places into strongholds, with tank traps and fortifications stretching across densely populated urban districts. This involved evacuation or death of the inhabitants and destruction of their possessions and dwellings. In addition, many hundreds of houses at Amsterdam and elsewhere were exposed to destruction by deporting people and confiscating their possessions. During the winter of 1944-1945 the wooden parts of these houses were pulled down for fuel until the walls collapsed. Industries were robbed of machines and tools, libraries of books, institutes of their instruments. Higher education was disorganized by the dismissal and imprisonment of teachers or by inviting the students into Nazi organizations, which membership more than 80 per cent refused. As a result of this attitude they were deported to Germany for forced labor or sent to concentration camps, where many of them perished miserably. Other actions against intellectual life were too numerous for a short description. Most periodicals were curtailed so that they ceased to be sources of information. Food rations steadily decreased from 1,842 calories per person in 1941 to 1,480 calories in 1944. In the western provinces, whose liberation was delayed till May 1945, the rations dropped rapidly during the last year to 420 calories despite Red Cross aid from Sweden, Switzerland and Portugal. Conditions were disastrous at the date of liberation, adding starvation disease to others then already prevalent. Deliberate starvation inflicted on the country, rather than military action, increased the loss of life. Casualties due to all causes including land, sea and air action amount to above 200,000, or more than 22 persons per thousand inhabitants.

Recovery of urban life has advanced spectacularly since the liberation. Rations are back to 2,150 calories by now and light, gas and fuel are almost adequate, thanks to an exceptionally mild winter. Transport performed miracles with terribly depleted material; during the last months of German occupation even the electrical leads which supplied an important part of the railway system were pulled down.

But we are still lamentably handicapped. Our students, anxious to learn and to catch up, do not have modern textbooks; we still need periodicals, books and references to work done or in progress in the free world during the war. By private initiative a few workers were able to gain access to scientific literature, but the majority are still starving for information. It would be a fitting gesture to give our scholars literature and appliances in the hope of future financial adjust-

ments with reinstatement and intensification of intellectual intercourse. Many promises have already appeared in our public press suggesting satisfactory conditions to the man in the street, but for the scholar himself but little has materialized.

Anniversary of Amsterdam University

January 8 was the 314th anniversary of the founding of Amsterdam University, celebrated in the great hall by a public meeting. Woerdeman, professor of anatomy, read a paper on the present state of the study of embryonic induction. On the same occasion two honorary doctor degrees were awarded; one of them—in medicine—was conferred on Elisabeth Dingemanse of the pharmacotherapeutic laboratory in recognition by the Faculty of Medicine for her research on insulin, sex and hypophysial hormones and the detection of nicotine: its chemistry, purification and assay by colorimetry and chromatography. A degree *honoris causa* in medicine is highly exceptional at our university, indicating a reward for keen and expert work.

In December 1945 the Leiden hygienist Professor P. C. Flu died at the age of 64. He was known as an authority on tropical bacteriology and hygiene. His son was killed by the S. S. in a Leiden street while visiting patients two years ago.

The chair of biochemistry of Utrecht University was awarded to H. G. K. Westenbrink, biochemist conservator of Amsterdam University.

BOLIVIA

(From Our Regular Correspondent)

La Paz, Jan. 5, 1946.

The Rockefeller Foundation in Bolivia

In May 1932 a devastating yellow fever epidemic flared up in Santa Cruz, which is a vital center of communications between the east and the west of the country. The Rockefeller Foundation, working then in the Chanaan Valley in Brazil on a similar problem, was asked for help. Two American physicians, Dr. Soper and Dr. Walcott, were sent by the health division of the foundation to La Paz. There had been 50 deaths due to yellow fever in Santa Cruz when Dr. Walcott started his work by organizing a training center for the fight against the Aedes aegypti mosquito, which infested all the dwellings in Santa Cruz. So successful was the foundation that the last yellow fever case in Santa Cruz was registered in August 1932, only two months after work was begun. The origin of that epidemic was later traced to a case of imported jungle yellow fever.

The anti-Aedes campaign was not limited to Santa Cruz alone but was soon extended to thirteen smaller places; viscerotomy services were started to provide liver specimens from the dead. As the result of the work done by the foundation, Santa Cruz is today practically free from any kind of mosquitoes, a grave menace before. A yellow fever case has not been reported there since 1932.

Another dangerous yellow fever epidemic was reported in 1936 from the tropical districts Beni and Pando, in the north of the country in the valley of the Amazon. Some 1,300 cases were diagnosed and 56 deaths were traced to that disease after examination of liver specimens. Other hundreds of deaths were probably due to yellow fever, but definite diagnosis could not be established, as liver specimens could not be secured because of the lack of communications and other difficulties. The epidemic area was a large one, extending to the western border of the Cordilleras to altitudes of 500 meters above sea level.

In the Yungas region near La Paz, several smaller epidemics were registered between 1939 and 1942. Another outbreak occurred in Todos Santos, the last river port, reached by boat in the journey up the Amazon and its tributaries. As soon as these outbreaks became known, the Rockefeller Foundation immediately sent personnel to eliminate Aedes aegypti and to establish viscerotomy centers and other services. Vaccinations against yellow fever were started in 1938, and by now over 34,000 people in exposed areas have been vaccinated. Aedes aegypti is actually not found in any of the towns of this country. A constant control is exercised and the viscerotomy service has extended to sixty-five places; liver specimens are sent to the central field laboratory of the foundation at Santa Cruz. Vaccination teams are constantly visiting the exposed areas, and every launch coming up the rivers is inspected and fumigated. Results are striking: there are hardly any yellow fever cases registered.

The National Health Department suggested in 1942 that the foundation should provide services also for malaria and ancylostomiasis, endemic diseases affecting an estimated 50 per cent of the total population in large territories of Bolivia. The foundation took charge of this problem. In the fertile valleys near La Paz work was difficult because of the constant menace of malaria; pseudopunctipennis was found to be the vector in some places even up to 2,600 meters above sea level. In 1943 the foundation started a large scale program there as well as in the valleys of Cinti and Mizque. Two health centers were established and staffed with physicians and nurses, free drugs were distributed and sanitation work was started to eliminate mosquito breeding places. The work was most successful. After only two years many places are practically mosquito free.

In the valley of the tributary streams of the Amazon, the foundation is fighting widespread ancylostomiasis. A survey made among school children there showed that many of them are hosts for one or several intestinal parasites; 80 per cent have ancylostoma, and the average hemoglobin value is as low as 50 per cent. It is in these regions that most of Bolivia's rubber is produced, and a surplus of farming products could be produced if there were enough healthy laborers. The foundation started a house to house survey to teach the necessity of individual sanitation in every dwelling. It aided in the construction of adequate lavatories and maintained free dispensaries.

The chairman of the foundation (Special Service of Prophylaxis against Yellow Fever, Malaria and Uncinariasis) is Dr. Henry P. Carr, an American physician who has worked in Bolivia since 1942; previously he had been stationed in Cuba, Mexico and Peru. He is assisted by a fairly large staff of Bolivian physicians, nurses and other sanitation personnel; specialists in sanitary problems are called from the United States whenever needed. A training center is in operation to provide the necessary personnel. The work of the several dispensaries is most satisfactory; sixty-nine viscerotomy posts are operated all over the tropical districts. Sanitation work in several areas has been successfully completed. A large scale educational program for children and adults is in operation.

Marriages

Ralph Burk Dawson, St. Louis, to Miss Nancy Scott Causey of Greensboro, N. C., in New York, November 22.

Bedford F. Boylston, Aiken, S. C., to Miss Isabel Brickley, Merchantville, N. J., in London, England, December 10.

Joseph Theodore Andrews, Harlan, Ky., to Miss Alice Charlotte Merry at Delphos, Ohio, December 15.

John Thomas Goodgame, Chattanooga, Tenn., to Miss Elizabeth Wilder of Clearwater, Fla., December 26.

Ralph DeCicco, Des Moines, to Lieut. Therese Ingrato, WAC, of Green Island, N. Y., December 11.

Frederick Fletcher Adams Jr., Columbia, S. C., to Miss Doris Marcia Gruber in Charleston recently.

Gray Carroll Buck Jr. to Miss Darthula Hardie Hendrick, both of Birmingham, Ala., November 15.

Mark W. Dick to Dr. Louise F. Schnute, both of Grand Rapids, Mich., in December.

Correspondence

IMPORTANCE OF RH FACTOR

To the Editor:—In THE JOURNAL, Dec. 29, 1945 I note the communication from Dr. Ralph Luikart in which he states that for almost a year he has instituted the determination of the Rh factor on his obstetric patients and that in the last six months he has been doing so routinely.

I wish to state that I have instituted this method in my own office for almost two years and in my service at the Beth-El Hospital for the past year and a half. I brought this to the attention of the Brooklyn Gynecological Society in a paper, "The Rh Factor in Obstetrics," which was published in the *Journal of Obstetrics and Gynecology* of September 1945. In that paper I called attention to the fact that in certain communities the Rh factor determination is more important in the saving of infant lives than is the Wassermann test. In a review of over 5,000 charts I did not encounter a single case of syphilis or a positive Wassermann reaction and yet, according to the state law, it was done routinely. I then urged that the Rh factor determination in all pregnant women be made as mandatory as the Wassermann test and I am glad to see the statement of Dr. Luikart that the Nebraska State Health Department is offering that service free.

I am sure that the time is fast approaching when it will be made a routine in all states where the Wassermann test is demanded.

JACOB HALPERIN, M.D., Brooklyn.

BLOOD GROUPING TESTS IN INFANCY

To the Editor:—I wish to endorse Dr. Edgar's suggestion (THE JOURNAL, January 12, p. 107) that Dr. Harville (*ibid.*, Nov. 17, 1945, p. 801) check the blood grouping tests in the family where he found a mother of group AB and a child of group O, and that the result be published in THE JOURNAL. This may forestall a great deal of trouble for those who are called on to testify in courts in cases of disputed paternity. It is possible that two factors may have contributed to the erroneous result in Dr. Harville's case (and erroneous it will no doubt turn out to be): The mother may be AB, subgroup A_2B, and the child will then be A_2, a subgroup in which the red cells are agglutinated less readily than in subgroup A_1, especially in the newborn. That is the reason why it is recommended not to do blood grouping tests in infants less than 1 month of age.

To this may be added the relatively large amount of transfused blood of group O, which, being Rh negative, remains in the circulation for a considerable time and thus may make the detection of the infant's own group A that much more difficult. In some cases of severe hemolytic anemia of the newborn the transfused blood may be the only one present in the circulation for some time until the infant begins to produce its own red cells.

ISRAEL DAVIDSOHN, M.D., Chicago.

KETOSURIA AND KETONURIA

To the Editor:—THE JOURNAL of Oct. 6, 1945 has just come to hand and I have read with much interest the editorial on ketosis on page 448. I notice that the term "ketosuria" is used to mean excretion of ketones in urine. I do not know if this term is commonly so applied in the United States, but it seems to me liable to cause confusion. I suggest that "ketosuria" should be reserved to mean the presence of ketoses (usually fructose) in urine and that the term "ketonuria" should be used to mean the presence of ketones in urine.

JAMES C. EATON,
Victoria Infirmary,
Glasgow, Scotland.

"PAROXYSMAL ABDOMINAL PAIN"

To the Editor:—Referring to the comment anent the article "Paroxysmal Abdominal Pain" published in the December 29 issue of THE JOURNAL, I submit the following:

In none of the 6 cases reported was there any specific mention made that a definite allergen was the causative factor which precipitated the attacks of abdominal pain. In the first case it was clearly stated that the author believed "the original injection of diphtheria antitoxin had produced an angioneurotic edema of the brain with subsequent changes in the cerebral cortex which predisposed to abnormal cerebral discharges." This patient had been studied by several prominent allergists, had been given the gamut of the usual tests and had been placed on various diets, all to no avail. Were there a specific allergen operative in the production of this patient's seizures, they certainly would have continued after treatment with anticonvulsants as well as prior to therapy. The latter applies as well to the remaining cases. Cases 2, 4, 5 and 6 had the usual studies for allergens, which yielded no positive data.

I do not mean to imply by this, however, or by the cases reported, that allergies may not produce the type of abdominal epilepsy which I have described. I agree that an allergic basis may be the substratum in some cases, and Winkelman and Moore have reported abdominal pain occurring as a partial epileptic manifestation in patients responding to certain allergens (Allergy and Nervous Diseases, *J. Nerv. & Ment. Dis.* **93**:736 [June] 1941).

With respect to the suggestion that metrazol be used to precipitate an attack, may I say that I believe the evidence as given in the detailed history was sufficient to fall within the criteria outlined for the convulsive state. Furthermore, metrazol might produce only a motor epileptic display without sensory abdominal representation. Having had considerable experience with the convulsive seizures induced by metrazol, I would feel very reluctant to submit my patients to such a drastic test when the history, examination, electroencephalographic studies and response to anticonvulsant therapy have, I feel, amply demonstrated the nature of the disorder.

MATTHEW T. MOORE, M.D., Philadelphia.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Feb. 9, page 372.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Part III. Various Centers, March. Exec. Sec., Mr. E. S. Elwood, 225 S. Fifteenth St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY & SYPHILOLOGY: *Written. Group B.* April 22. *Oral. Group A and B.* June 6-8. Final date for filing application is March 1. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Philadelphia, May 9-11. Final date for filing application is March 15. San Francisco, June 27-29. Final date for filing application is April 15. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 9-12. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, May 22-25. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, March 22. *Oral.* Cleveland, April 27-28 and San Francisco, July 1-5. Sec., Dr. Lee F. Hill, 3309 Forest Ave., Des Moines, Ia.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: Chicago, May 24-25. Final date for filing application is February 1946. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N. W., Washington 6, D. C.

AMERICAN BOARD OF SURGERY: *Written. Part I.* Various centers, October. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia 2.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, February 1947. Final date for filing application is Nov. 15. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Uterine Tumor Mistaken for Pregnancy.—The patient, a divorcee, had some irregularity in her menses and excessive flow and pain when they occurred. Dr. Deppen, a specialist in internal medicine, whom she consulted, made a diagnosis of pelvic tumor. Determining that an operation was necessary and since he did no surgery, he referred the case to Dr. Johnson, who operated, March 2, 1938, while the patient was "flowing," removing, however, only a diseased appendix. Apparently, prior to the operation, Johnson, suspecting pregnancy, disagreed with the diagnosis made by Deppen. He did not inform Deppen of his disagreement and Deppen was not present at the operation. Later Johnson advised the patient, her sister and Deppen that the patient was pregnant. About two weeks later a Friedman test, made at Deppen's suggestion at the hospital at which the patient was confined, had a positive reaction, indicating pregnancy. The patient left the hospital three weeks after the operation. She continued to have pain and uterine hemorrhages. On March 28 Deppen referred the case to Dr. Harvey, a specialist in obstetrics and gynecology, who examined her over a period of three weeks. The Friedman test, among others, was made, with a negative result. Nevertheless, Harvey was uncertain as to whether the patient's condition was one of pregnancy or of uterine tumor. He waited and applied other tests on the theory that the uterus, if a fetus was present, would increase in size; but the uterus did not so increase, and a second Friedman test was negative. The hemorrhages increased, and Harvey operated. On visual examination the uterus did not contract on stimulation and was "paler" than usual for a pregnant uterus. To him this indicated a tumor and that even if a fetus was present it was not alive. Accordingly, believing it necessary to save his patient's life, he removed the uterus. Examination of the organ by a pathologist revealed the presence of an "inside" tumor, even though, in his opinion, the uterus had "the [outward] appearance and consistency of a pregnant uterus."

Subsequently Dr. Johnson died and the patient brought suit for damages for malpractice against his administratrix. The gist of the action was that while Johnson was employed to remove the "tumor or abscess" in the uterus, without the patient's knowledge or consent, he removed her appendix and, "disregarding the tumor or abscess then present in plaintiff's body, failed and neglected to remove said tumor abscess" and thereby the plaintiff was caused to have a second operation. The action was further based on an allegation that Johnson negligently and falsely stated to other persons that the patient, an unmarried woman, was pregnant. At the trial the patient testified that she first saw Johnson the afternoon before the operation, when he came to her hospital room, removed the sheet covering her body, placed his hand on her abdomen and said "We will operate for a tumor." The entire examination covered two or three minutes and Johnson, so she stated, made no further examination or tests and took no history. There was introduced in evidence certain portions of her hospital records. One of these was referred to as the "summary" record, was signed by Johnson, and contained the following notations, among others:

> Under the title of "Chief Complaint" . . . "Severe pain pelvis. Vaginal discharge. Occasionally blood in discharge. Unable to work. Constipated; has had no regular normal flow for several months"; under "Onset and Course" the following: "Has had discharge for several months. Bartholin gland abscess opened and drained. Last two weeks increased pelvic pain with increased flow at periods and considerable discharge"; and under "Physical Examination" the following: "Abdomen: Upper Tympanitic. Lower, rigid and painful in right lower quadrant. Rounded mass, mid line, reaching nearly the umbilicus. Considerable vaginal discharge. No Blood."

Another record introduced was entitled the "Record of the Operation" and was also signed by Johnson, showing a "Preoperative" diagnosis of "Appendicitis sub-acute. Pregnancy? Pelvic adnexal disease." His "Postoperative Diagnosis" entry was "Ditto" written under "Pelvic adnexal disease," followed by "Pregnancy—4 mo. Appendicitis s. a." His "Gross Pathology" entry was "Pregnant uterus 4 mo. appendix—deeply injected adherent to rt. ovary region." It further shows "Operation" followed in writing by "Appendectomy." The "Summary" record showed under "Preliminary Diagnosis" the same entries recited and under "Final Diagnosis" was recited "Appendix sub acute. Pregnancy 4 to 4½ mos. Pelvic adnexal dis." and following the printed words "Indications for Operation" was the entry "Appendix acute. Pelvic adnexal disease. Pregnancy (?) suspected." From the evidence it further appeared that when Johnson operated "there was no emergency requiring an immediate operation." There was also introduced the testimony of expert medical witnesses that where a diagnosis of pelvic tumor is made and there is a suspected pregnancy, as there was here, several tests should be made and that question determined before an operation is undertaken. Failure to do that would be carelessness and negligence on the part of the surgeon. The evidence of the experts was further that ordinary preoperative tests can determine whether or not a pregnancy exists; and that where there is no emergency and the surgeon disagrees with the diagnosis of the referring physician, and does not know what tests the referring physician has made, nor what those tests indicated, the surgeon should make the tests and examinations or have them made and know the results before operating. Further, the medical witnesses agreed that neither the Friedman test, nor menstruation or the lack of it, are infallible indications. There are tests, however, which the surgeon should have made and taken into consideration in arriving at his ultimate conclusion. At the close of the evidence the trial court refused to direct a verdict for Johnson's administratrix and the jury returned a verdict for the patient, on which judgment was entered. An appeal to the Supreme Court of Nebraska eventuated.

To determine the liability of the operating physician under the present circumstances the court discussed applicable principles of law and summarized them somewhat as follows: Where a patient's physician informs a surgeon of the diagnosis which the physician has made and, with the authority of the patient, employs the surgeon to perform an operation which the physician deems advisable or necessary, the surgeon may rely on the diagnosis of the physician and is not required to make an independent diagnosis before operating, in the absence of information or conditions which would put the surgeon on inquiry as to the correctness of the physician's diagnosis and the advisability or necessity for the operation. Where, under the aforementioned conditions of employment, the surgeon, relying wholly on the physician's diagnosis, operates and during the course thereof discovers facts or conditions which suggest a reasonable basis for a different conclusion from that arrived at by the physician, which, if true, would make the proposed operation inadvisable or unnecessary, and there exists no emergency requiring him to proceed, the surgeon is not negligent if he refrains from completing the operation until a further proper diagnosis based on the newly discovered facts or conditions is made, and a proper course of action based thereon is determined. Likewise, where, under the foregoing conditions of employment, and before performing the operation, the surgeon discovers facts or conditions which appear to contradict the physician's diagnosis, or which cause the surgeon to question the correctness of the physician's diagnosis or to reach a different diagnosis, with the result that a different or no operative treatment is indicated, and there is no emergency, and the surgeon operates without making an additional and proper diagnosis to determine the questions presented and the action to be taken, the surgeon is negligent and liable to respond in damages for such injury and detriment to the patient as proximately follows.

The court accordingly believed that the trial court did not err in refusing to direct a verdict in favor of the surgeon's administratrix.

However, the Supreme Court found it necessary to reverse the judgment of the trial court and to remand the cause for further proceedings because of certain errors committed by the trial court. In the first place, the trial court in instruction No. 1 to the jury set out plaintiff's allegation of negligence that "During the operation, and without the previous consent and without the knowledge of the plaintiff, the defendant (Dr. Johnson) removed her appendix." In his instruction No. 3 he advised the jury of plaintiff's burden of proving that Dr. Johnson was "negligent in his treatment of the plaintiff in *some particular* as alleged in the petition," and that "If plaintiff has proved the above propositions by a preponderance of the evidence and that the *one or more* of them was the proximate cause of said damage to the plaintiff, then and in that case you will find for the plaintiff." There is no evidence, said the Supreme Court, that plaintiff consented to the removal of her appendix or that it was done with her knowledge. The evidence is all to the contrary. The evidence of Dr. Deppen, however, is that Dr. Johnson, finding the condition of the appendix as he did, should have removed it, and it was right that he did. There is no evidence to the contrary. Moreover, there is no evidence that the removal of the appendix in any wise caused any of the damage for which plaintiff sought to recover. That issue should not have been submitted to the jury. There is no way by which it can be determined here what, if any, part of the verdict was given based on the removal of the appendix. We deem the error to be prejudicial.

In the second place, the trial court submitted to the jury that "During said operation defendant (Dr. Johnson) examined and handled the uterus and saw, or by the exercise of ordinary care and skill would have ascertained the condition of the uterus as it was, affected with said tumor or abscess." We find, said the court, no evidence that Dr. Johnson "handled the uterus." Neither is there evidence that, *after* he had exposed the uterus, he could "by the exercise of ordinary care and skill" have ascertained that the uterus was affected with a tumor. The test of stimulation that could then have been made with the uterus in place was admittedly inconclusive. The evidence of plaintiff's experts, however, was that to make a definite diagnosis after the uterus was exposed would have required that it be opened, as was done in the laboratory, and that that could not be done in place without grave danger to the plaintiff. When he had proceeded that far, Dr. Johnson was confronted with either removing a uterus which he believed contained a fetus, with the resulting death of the fetus if alive, and the sterility of the plaintiff, or leaving the uterus in place. He elected not to proceed. The expert witnesses of plaintiff do not indicate other than that he proceeded in the exercise of a proper professional judgment at that time. We are of the opinion that the trial court erred in submitting this instruction to the jury and that it was prejudicial.

Thirdly, in instruction No. 2, the trial court "summarized" to the jury the claim of the patient as follows: "Plaintiff claims that the physician and surgeon was careless and negligent in advising an operation without sufficient examination and in performing said operation improperly, and that said negligence and carelessness was the direct and proximate cause of plaintiff's damages." Dr. Johnson did not advise an operation. He performed one and, according to the evidence, without sufficient examination and diagnosis. The instruction refers to the "physician and surgeon," who, it is claimed, "was careless and negligent in advising an operation." Dr. Deppen advised the operation. He was not a party to the action, nor is it claimed that he was negligent or careless. The effect of the instruction was to wipe out the specific recital of plaintiff's claims and to submit to the jury "to consider" an inaccurate and misleading summary. The instruction should not have been given and was in our opinion prejudicial to the defendant.

As stated before, the judgment in favor of the patient was reversed and the cause remanded for further proceedings.—*In re Johnson's Estate: Douglas v. Johnson, 16 N. W. (2d) 504 (Neb., 1944).*

Bureau of Investigation

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices or cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products. These abstracts are given as examples, since space does not permit a review of all cases reported.

Konceal Hair Dressing.—That this product, formerly called simply "Konceal," is a hair dressing and not a dye, will restore the original color to the hair, dissolve dandruff, conceal the age or give a youthful appearance, were among the misrepresentations which the Germadol Herb Company, New York, agreed to discontinue in a stipulation signed in July 1944.

La-Nu Liquid Shampoo and La-Nu Medicated Ointment.—The Powell Distributing Company and the La-Nu Distributing Company, Philadelphia, stipulated in July 1944 to cease representing that the shampoo gives new life or added vitality to the hair, or that the ointment assures a healthy scalp.

Murray's Skin Bleach.—Murray's Superior Products Company, Chicago, stipulated in April 1944 to cease representing, among other things, that this clears normally dark skin, blotches or pimples, and to warn in advertisements and labeling that directions must be followed.

Nature's Aids Center Nostrums.—Nature's Aids Center, Brooklyn, stipulated in July 1944 that it would cease representing: That "Karpatol" will cure any stomach ailment, promote digestion or benefit the blood, liver, kidneys or nerves; that "Regulator Femina" will regulate the menses or help during the menopause; that "Holly (or Holy) Mountain Tea" will relieve or cure any chest or lung disease, or has been tested and recommended by universities or other institutions, or that "Garlo Garlic Pills" will relieve symptoms of high blood pressure.

New Peruna Tonic.—That this will cure colds or build resistance to them, restore energy, increase weight or vigor, or affect such conditions other than as a tonic were among the misrepresentations to be discontinued in the advertising, as stipulated in April 1944 by the Consolidated Drug Trade Products, Chicago.

Nix Bleach Cream.—The Nix Cosmetics Company of Memphis, Tenn., stipulated in September 1944 to discontinue any advertisement which did not reveal, among other things, that this product should not be applied too frequently, or used on an area of the skin larger than the face and neck at any one time, or employed where the skin is broken. The stipulation was supplemental to one signed for the company by C. P. Edwards in April 1941, which remains in effect and provides for discontinuance of claims that the cream affects the skin in a new way or in any way different from that of other preparations.

Palmer's Skin Success Whitening Cream.—E. T. Browne Drug Company, Inc., New York, stipulated in September 1944 to discontinue any advertisements which did not make clear that the cream should not be applied too frequently, or to an area of the skin larger than the face and neck at any one time, or to skin that is broken.

Prunol.—In July 1944 the Prunol Company, Atlanta, Ga., stipulated that it would cease representing the laxative action of Prunol as due principally to its prune concentrate and mineral oil element, and that future advertisements would conspicuously warn that Prunol contains phenolphthalein and should not be used when symptoms of appendicitis are present; provided, however, that the statement, "Caution: Use only as directed," would be sufficient if the label instructions contain a similar warning.

Super-Kaps.—Sears, Roebuck & Company, Chicago, stipulated in May 1944 to cease representing that this product will beautify the user or correct nervous conditions except those due to a lack of vitamin B_1 in the diet.

Vitawine and Oculine Products.—In June 1944 the Interstate Laboratories, Louisville, Ky., stipulated to cease representing that Vitawine helps constipation or indigestion, increases energy, cures conditions caused by a deficiency of vitamin B_1, or is prescribed by physicians; or that "Oculine Eye Pads," "Oculine Eye Salve," "Oculine Eye Bath" or "Oculine Eye Drops" is useful in treating eye disorders. In 1940 the Food and Drug Administration declared that Vitawine labels falsely represented that product contained blood- and body-building ingredients, would remedy anemia and prevent pellagra, diarrhea and certain types of neuritis. They reported it to contain over 14 per cent of alcohol, with citrates of sodium, manganese, iron and ammonium and some vitamin B_1.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Fort Wayne, Ind.

12:355-384 (Nov.) 1945

Clinical Significance of Cholesterol. G. L. Muller.—p. 355.
Effect of Bile Salts on Experimental Production of Ulcers in Dog. R. L. Driver and E. B. Carmichael.—p. 378.
*Hyperinsulinism as Factor in Peptic Ulcer. E. M. Abrahamson.—p. 379.

Hyperinsulinism in Peptic Ulcer.—A group of patients with peptic ulcer was subjected to dextrose tolerance tests. The uniformly low late values of blood dextrose fulfilled Abrahamson's prediction that patients with peptic ulcer would have hyperinsulinism. The fact that patients with the clinical diagnosis of peptic ulcer but without x-ray confirmation of peptic ulcer have the same type of dextrose tolerance curves as those in whom the confirmation was present leads to the possibility that the hyperinsulinism, or at least the chronic hypoglycemia, might have some etiologic relationship to ulcer.

American Journal of Medical Sciences, Philadelphia

210:561-700 (Nov.) 1945

*Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis: Experimental Study of Immunity and Cross Immunity in Volunteers; Preliminary Report. J. R. Neefe, J. Stokes and S. S. Gellis.—p. 561.
*Streptomycin: Absorption, Diffusion, Excretion and Toxicity. Dorothy H. Heilman, F. R. Heilman, H. C. Hinshaw, D. R. Nichols and W. E. Herrell.—p. 576.
*Antagonism of Local Anesthetics Against Sulfonamides. B. S. Walker and M. A. Derow.—p. 585.
Penetration of Penicillin into Joint Fluid Following Intramuscular Administration. V. G. Balboni, I. M. Shapiro and D. M. Kydd.—p. 588.
Typhoid Bacilluria and Urolithiasis. F. Dreyfuss and J. Roth.—p. 591.
Human Infection with Bacterium Necrophorum. I. J. Greenblatt and A. P. Greenblatt.—p. 596.
Unilateral Diaphragmatic Flutter. R. Harris and D. Scherf.—p. 598.
Intestinal Lipodystrophy (Lipophagia Granulomatosis or Whipple's Disease). H. J. Amsterdam and D. M. Grayzel.—p. 605.
Stevens-Johnson Syndrome (Eruptive Fever with Stomatitis and Conjunctivitis). S. Kove.—p. 611.
Experiences with 2,350 Blood-Transfusions at Army General Hospital in India. C. K. Kirby.—p. 623.
Simple Technic of Sternal Marrow Biopsy for Spreads and Sections. Elizabeth Mertens.—p. 630.
Effect of Vitamin K Oxide on Anticoagulant Properties of Dicumarol. C. S. Davidson, J. H. Freed and Harriet MacDonald.—p. 634.
Final Note on Reported Case of Erythremia, Gout and Subleukemic Myelosis. G. H. Reifenstein.—p. 638.
Periarteritis Nodosa: Case with Autopsy. R. N. Washburn and T. O. Otto.—p. 640.
Calcific Aortic Valvular Stenosis. L. H. Sophian.—p. 644.
Tentative Test for Pheochromocytoma. G. M. Roth and W. F. Kvale.—p. 653.
Study on Prevention of Mumps Orchitis by Gamma Globulin. S. S. Gellis, A. C. McGuinness and M. Peters.—p. 661.
Pharmacology and Therapeutic Applications of Anti Thyroid Compounds. W. F. Riker and W. C. Wescoe.—p. 665.
Fibrocystic Disease of Pancreas. H. M. Weber and D. G. Pugh.—p. 681.

Homologous Serum Hepatitis and Infectious Hepatitis.—Neefe and his associates induced homologous serum hepatitis experimentally in 6 human volunteers by the parenteral administration of materials known to contain a causative agent of this disease. After recovery the 6 men were inoculated parenterally with a plasma that contained a causative agent of homologous serum hepatitis in order to test for homologous immunity. Nine normal control subjects without previous history of hepatitis also were inoculated parenterally with the same plasma. None of the 6 men in the test group developed incapacitating symptoms or jaundice, whereas 8 of the 9 controls developed hepatitis with jaundice. The 6 men were then inoculated (1 orally, 5 parenterally) with materials known to contain a causative agent of infectious (epidemic) hepatitis in order to test for cross immunity. Twelve normal controls without previous history of hepatitis also were inoculated with these materials, 6 receiving the infectious material orally and 6 receiving it parenterally. Of the 6 men tested for cross immunity, 5 again developed hepatitis, the evidence being conclusive in 4 and very suggestive in the fifth person. The one without evidence of hepatitis previously had had both infectious hepatitis and homologous serum hepatitis. None of the 6 normal controls inoculated parenterally developed hepatitis, whereas 5 of the 6 normal controls inoculated orally contracted typical infectious hepatitis. The groups employed in these studies are too small to warrant final conclusions regarding the relationship of the causative agents of infectious hepatitis and homologous serum hepatitis. Nevertheless the observations provided considerable evidence that the two agents employed were not identical.

Streptomycin.—This is a report by the Heilmans and their associates of studies which were begun at the Mayo Clinic in September 1944 to explore the possible methods of administration and to obtain some information concerning absorption, diffusion, excretion and toxicity of streptomycin. The antibiotic substance has been administered to human beings in amounts which could theoretically be regarded as therapeutically effective. The number of patients concerned in the study is only partially represented by the 30 tabulated. Streptomycin can be administered intravenously, intramuscularly or subcutaneously, also by the intrathecal route, by nebulization or by the oral route. If intermittent methods of parenteral administration are to be used it should be administered at least every three or four hours in a manner similar to that which has been employed for the administration of penicillin. Diffusion of streptomycin into the cerebrospinal fluid does not readily take place unless large doses are administered. Following parenteral administration, streptomycin is readily absorbed into the general circulation and is excreted for the most part in the urine. Streptomycin is diffused through the placenta and is available in the fetal circulation. It also appears to be concentrated and excreted in the bile. Serious and uncontrollable toxic reactions have not been encountered following administration of fairly large amounts of streptomycin in single or repeated injections. Streptomycin has been administered to some patients for a considerable time without evidence of toxic reactions.

Antagonism of Local Anesthetic Against Sulfonamides.—Walker and Derow investigated certain substances with proved or putative local anesthetic action in regard to their activity as sulfonamide antagonists, confirming and in some cases extending the work of other investigators. They found the inhibitory effect of procaine exactly comparable, mol for mol, with that of para-aminobenzoic acid on sulfathiazole. Ortho-aminobenzoic acid and meta-aminobenzoic acid are without inhibitory effect on sulfathiazole. Three derivatives of meta-aminobenzoic acid (3-amino-4-hydroxymethylbenzoate [orthoform, N. N. R.], 3-amino-4-hydroxypropylbenzoate and 3-amino-4-hydroxybenzoic acid) are likewise without inhibitory effect. The work of previous investigators demonstrating no antisulfonamide action of local anesthetics other than the derivatives of para-aminobenzoic acid is confirmed.

American Journal of Ophthalmology, Cincinnati

28:1193-1306 (Nov.) 1945

Chronic Posttraumatic Syndromes Leading to Enucleation. Bertha A. Klien.—p. 1193.
Reconstruction of the Lids. W. L. Hughes.—p. 1203.
*Penetrating Injuries of Eyes: Statistical Survey. W. F. Moncreiff and K. J. Scheribel.—p. 1212.
Relationship Between Visual Acuity and Refractive Error in Myopia. J. S. Crawford, C. Shagass and T. J. Pashby.—p. 1220.
Resection of Inferior Oblique Muscle in Hypotropia. O. H. Wagman.—p. 1226.
Unusual Type of Corneal Opacities. J. W. Henderson and D. R. Gillespie.—p. 1236.
New Permanent Hand Magnet in Light of Present Day Magnet Operation Methods. B. S. Brodsky.—p. 1245.

Penetrating Eye Injuries.—Moncreiff and Scheribel review observations on 183 patients with penetrating eye injuries that were observed at Cook County Hospital in Chicago over a five year period among a total of 691 patients with various types of eye injuries. Of the incised or lacerated wounds, about two

thirds of those purely corneal were saved; of the scleral and corneoscleral, less than half. Of the corneal, scleral and corneoscleral ruptures due to contusion, only 40 per cent of the corneal were saved, and less than 20 per cent of the others. Injuries due to a fall or the blow of the bare fist were almost uniformly totally destructive of vision and even of the eye. Broken glass caused 22.7 per cent of all the injuries, and in half of these the eye or the vision was completely lost. There was partial loss of vision in most of the remainder. Nearly three fourths of the 87 eyes on which conservative surgery was done were saved. While the value of the sulfonamides in certain cases cannot be questioned, there were but few cases in which their dramatic effect could be demonstrated. Replacement of glass by transparent plastics or unbreakable glass would prevent a large percentage of the serious eye injuries caused by glass. There were 12 patients (over 6 per cent) on whom, through mistaken judgment, conservative surgery was performed instead of prompt enucleation. Consultation with more experienced ophthalmologists might prevent beginners from making mistakes of this kind. Sympathetic ophthalmia, as well as other lesser complications, could be prevented if in the absence of any cogent reason to the contrary an eye with a penetrating wound was enucleated within three weeks after injury, unless the posttraumatic inflammation had subsided or was well on its way to quiescence.

American Journal of Pathology, Ann Arbor, Mich.

21:1031-1214 (Nov.) 1945

Racial Distribution of Nephritis and Hypertension in Panama. C. E. Taylor.—p. 1031.
Experimental Studies in Calcification: IV. Effect of Irradiated Ergosterol and of Starvation on Dentin of Rachitic Rat. J. P. Weinmann and I. Schour.—p. 1047.
Id.: V. Effect of Phosphate on Alveolar Bone and Dental Tissues of Rachitic Rat. J. P. Weinmann and I. Schour.—p. 1057.
Intestinal Lipodystrophy (Whipple's Disease). P. J. Fitzgerald and T. D. Kinney.—p. 1069.
Pathologic Study of Renal Damage Produced by Sulfadiazine in Rats: Development, Repair and Residua. K. M. Endicott and A. Kornberg.—p. 1091.
Studies in Vitro on Physiology of Cells: Histologic Reactions of Living Tissues to Hypotonic Solutions. R. Schrek.—p. 1101.
Pathologic Study of Mice Infected with Virus of Swine Influenza. I. N. Dubin.—p. 1121.
Primary Splenic Neoplasms. W. L. Bostick.—p. 1143.
Giant Cystic Arrhenoblastoma of Ovary Containing Entodermal Epithelium and Carcinoid. P. H. Hartz.—p. 1167.
Tuberculosis of Myocardium Causing Complete Heart Block. T. B. Menon and C. K. Prasada Rao.—p. 1193.

American Journal of Public Health, New York

35:1121-1252 (Nov.) 1945

Tsutsugamushi Disease (Scrub Typhus, Mite Borne Typhus) in New Guinea. F. G. Blake, K. F. Maxcy, J. F. Sadusk Jr., G. M. Kohls and E. J. Bell.—p. 1121.
Pulmonary Calcification in Negative Reactors to Tuberculin. A. Christie and J. C. Peterson.—p. 1131.
Making Public Health Positions More Attractive. J. W. Mountin.—p. 1148.
Comprehensive Training Program for Public Health Personnel. G. St. J. Perrott.—p. 1155.
Health Officer and His Personnel. W. S. Shepard.—p. 1163.
Statistical Research in Clinical Tests for Nutritional Deficiencies. D. G. Wichl.—p. 1168.
Health Education in Hospitals and Outpatient Departments. Henriette Strauss.—p. 1175.
Health Education Methods of Red Cross. H. E. Kleinschmidt.—p. 1181.
Utilizing Medical Social Service in Venereal Disease Clinic. Margaret Lumpkin.—p. 1185.
*Control of Typhus Fever in Mexican Villages and Rural Population Through Use of DDT. C. Ortiz-Mariotte, F. Malo-Juvera and G. C. Payne.—p. 1191.

Control of Typhus in Rural Mexico with DDT.—Ortiz-Mariotte and his associates observed the results of delousing the inhabitants of Mexican villages through application to the clothing of powder containing DDT in 5 per cent concentration and application to the scalp of a lotion of which the basic ingredient is phenyl cellosolve. With 2 exceptions typhus was not present in the communities in which delousing studies were made. In two villages where studies were carried out while epidemics of typhus were occurring, the epidemics subsided rapidly after the application of the DDT powder. The elimination of lice from a village and maintenance of louse free conditions has been found to present more difficulties than temporary delousing to stop the spread of typhus infection. The chief difficulty encountered is that of achieving universal treatment in a community. The effect of phenyl cellosolve lotion on head lice has been found to be only temporary.

American Journal of Surgery, New York

70:137-274 (Nov.) 1945

Pilonidal Disease: Management of Cysts, Sinuses and Abscesses in Naval Personnel. E. Granet and L. K. Ferguson.—p. 139.
*Stricture of Male Urethra. T. W. Botsford, J. H. Harrison and B. E. Richel.—p. 153.
Intussusception: Diagnosis and Treatment. O. F. Smith.—p. 158.
Value of Salpingography in Surgical Diagnosis. P. Bernstein.—p. 165.
Intestinal Injury and Fecal Fistula in Gynecologic Surgery. H. C. Falk and S. Hochman.—p. 177.
Primary Treatment of War Amputations. E. C. Weckesser.—p. 184.
Internal Derangements of Knee: Diagnosis and Treatment. B. J. Mintz.—p. 189.
Roentgenologic Exploration of Sinus and Fistulous Tracts. B. Coplеman.—p. 197.
Refrigeration Anesthesia. H. O. Horner.—p. 201.
Hypoproteinemia in Surgery of Thorax. M. C. Ratzan and S. A. Thompson.—p. 213.
Use of Free Omental Grafts in Thorax: Experimental Study. S. A. Thompson and B. Pollock.—p. 227.
Constant Traction Dressing. W. J. Gardner and V. B. Seitz.—p. 232.

Stricture of Male Urethra.—Botsford and his associates present an analysis of 87 cases of urethral strictures treated in an army general hospital overseas; 1,077 cases of urethritis were treated during the same period. In 76 of the 87 cases the strictures were a sequel to gonorrhea; 4 were posttraumatic, 1 was congenital and in 6 the history was noncontributory as to cause. Stricture of the urethra is the most insidious and the most common late complication of gonorrhea. Chronic urethral discharge and difficulty in urination were the main presenting symptoms. The urologic investigation of urethral stricture is outlined, with emphasis on the value of cysto-urethroscopy, urethrography and observation of the patient during the act of micturition. Therapy of urethral stricture involves treatment of the stricture itself and of the accompanying infection of the upper, middle and lower urinary tract. Many strictures are readily amenable to instrumental dilation, as is manifested by easy passage of curved sounds to a caliber of 24 or 26 French without bleeding. Dilations are done at six or seven day intervals. Urethral dilation was employed in 56 cases. Twenty-six patients had internal urethrotomy. Criteria for the use of this operation are as follows: 1. The stricture is not impermeable. 2. The stricture is located in the anterior urethra, i. e. within the penile or bulbous urethra. 3. The stricture is not amenable to dilation, owing either to a tortuous lumen or to associated bleeding from the adjacent urethra distal to the stricture, or inelasticity of the stricture due to dense scar tissue. 4. The stricture is of small caliber, i. e. less than 18 French. The operation is done under spinal or caudal anesthesia and the Maisonneuve type of urethrotome is used. External urethrotomy was done on 4 patients. The indication for this operation was the presence of an impermeable stricture causing urinary retention.

Annals of Allergy, Minneapolis

3:333-400 (Sept.-Oct.) 1945

Conjunctival Test as Guide to Clinical Immunity in Hay Fever. Mary H. Loveless.—p. 333.
Mold Allergy: II. Clinical Analysis. G. I. Blumstein.—p. 341.
Organic State in Problem of Allergy. W. F. Petersen.—p. 348.
Penicillin Urticaria. M. Zeller.—p. 360.
*Inhalation of Ten Per Cent Carbon Dioxide and Ninety Per Cent Oxygen Plus 1:100 Glycerinized Epinephrine Hydrochloride for Relief of Asthmatic Attacks. S. D. Lockey.—p. 362.
Parenteral Use of Butanefrine in Asthma: Comparison with Epinephrine. M. M. Hartman.—p. 366.
Unusual Effect of Aminophylline on Intestinal Tract: Case Report. M. Zeller.—p. 369.

Carbon Dioxide and Oxygen with Glycerinized Epinephrine Hydrochloride in Asthma.—According to Lockey, 10 per cent carbon dioxide may be used with 90 per cent oxygen in a pressure tank with the usual reducing valve to regulate the flow. A vaporizer containing 1:100 glycerinized epinephrine hydrochloride is attached to a rubber outflow tube, and vaporization of this material is effected through the attached tube and vaporizer. The patient holds the nozzle of the vaporizer in his oral pharynx and breathes quietly. The author has used this method twenty-eight times. Bronchodilator action takes place

from the inhaled glycerinized 1:100 epinephrine hydrochloride. Dryness of the tracheobronchial tree is prevented by the use of glycerin, which also helps to raise the humidity of the inhaled air and vapor. The resorbing power of the bronchial mucosa is increased. The sputum is liquefied and the patient is able to expectorate more easily. Long, tenacious, thick mucous plugs are often coughed up after the inhalation of 1:100 glycerinized epinephrine by means of the carbon dioxide and oxygen pressure tank. A small electric mechanical aspirator can be used after inhalation to remove tenacious plugs of mucus.

Archives of Neurology and Psychiatry, Chicago

54:231-318 (Oct.) 1945

*Acute War Neurosis: Special Reference to Pavlov's Experimental Observations and Mechanism of Abreaction. W. Sargant and H. J. Shorvon. —p. 231.
Disturbances in Sleep Mechanism: Clinicopathologic Study: II. Lesions at Corticodiencephalic Level. C. Davison and E. L. Demuth.—p. 241.
Multiplicity of Representation versus Punctate Localization in Motor Cortex: An Experimental Investigation. J. P. Murphy and E. Gellhorn.—p. 256.
Disseminated Oligodendroglioma. C. M. Blumenfeld and W. J. Gardner. —p. 274.
Blood Supply of Peripheral Nerves: Practical Considerations. S. Sunderland.—p. 280
Blood Supply of Sciatic Nerve and Its Popliteal Divisions in Man. S. Sunderland.—p. 283.
Studies on Cerebral Edema: II. Reaction of Brain to Exposure to Air; Physiologic Changes. M. Prados, B. Strowger and W. Feindel.—p. 290.

Acute War Neurosis.—Sargant and Shorvon point out that the phenomena of the "equivalent," "paradoxic" and "ultraparadoxic" phases of the conditioned reflex can be related to acute war neuroses and their treatment. The authors say that from the clinical point of view their most striking observation was the frequency with which they encountered among some patients with acute neurotic states from the battlefields the series of events represented by the sequence: traumatic experience, abnormal psychiatric state exhibiting stereotypy of behavior or thought, artificially induced state of excitement, sudden collapse of the patient into a condition of total cortical inhibition and recovery to a more normal psychiatric state. The last three items of this series are in general parlance covered by the term "abreaction." The authors present 7 case records to illustrate some of the more important observations, especially with respect to experiments on the mechanism of abreaction. One case showed the differing effects of sodium amytal and ether in producing excitation during abreaction and the variable results obtained. Two other cases showed the breaking up of the symptoms of a "stereotypy" when excitation induced under ether is carried on to the stage of ultraboundary inhibition. The relief of focal cortical inhibition, such as loss of voice or stammer, early in ether excitation is demonstrated in 2 other patients. Another case illustrates the combined use of sodium amytal and ether to produce a more controlled and effective type of abreaction in a very excited patient and the symptomatic relief obtained when the ultraparadoxic phase was finally brought about. A seventh case shows that artificially induced excitation under ether will relieve symptoms of hysterical stupor.

Archives of Otolaryngology, Chicago

42:235-308 (Oct.) 1945

Nasogenital Relationship: Review of Literature. R. S. Rosedale.—p. 235.
Development of Cochlear Aqueduct and Round Window Membrane in Human Embryo. J. G. Waltner.—p. 239.
*Early Diagnosis and Arrest of Otosclerosis: Clinical and Histologic Otosclerosis. E. P. Fowler.—p. 253.
Receptor Apparatus of Vestibulovasomotor Reaction. J. R. Lindsay, M. J. Oppenheimer, H. T. Wycis and E. A. Spiegel.—p. 257.
Aural Manifestations of Leukemia. J. G. Druss.—p. 267.
Abscess of Nasal Septum Complicating Acute Ethmoiditis. A. L. Beck. —p. 275.
Paranasal Sinuses. S. Salinger.—p. 285.

Early Diagnosis and Arrest of Otosclerosis.—Fowler says that otologists do not know of a way to diagnose early (subclinical) otosclerosis, a sure way to diagnose early or late ankylosis of the stapedial footplate (clinical otosclerosis), or a cure for the lesion. Otosclerotic foci are found in persons with and without a family history. It is generally held that in the presence of deafness the following signs point to otosclerosis: a pinkish glow from the promontory, an apparent increase of hearing for bone-conducted sound, a positive Gellé test, immovability of the malleus, scantiness of cerumen, hairs and sweat in the external auditory canal, patency of the eustachian tubes, infrequency of colds in the head, a family history of ostosclerosis and no personal prior history of aural disorders. But no one of these is pathognomonic, and even two or three of them are only suggestive of impending otosclerosis, in the absence of deafness. All of them may be absent in the presence of otosclerosis, and all of them may be present in the absence of otosclerosis. Necropsies have shown that 7.55 per cent of white persons harbored otosclerosis, but only about 1 per cent had ankylosis. The author stresses the incidence of inactivity and activity at different periods of life. Ankylosis should be stressed because ankylosis is the cause of the deafness, and it has usually been found accompanied by activity in the lesion. The only impressive sign of beginning ankylosis is a slight lowering of hearing for the lower frequencies. The typical audiometric curve of the patient with uncomplicated active otosclerotic ankylosis shows a loss of hearing which progresses inversely with frequency. Evidence that the fistula operation arrests the lesion is not impressive. It does in some instances and for varying periods improve the hearing considerably, but this can occur irrespective of any change in the activity of the otosclerosis. Every child should be carefully examined otologically when it enters school. A history of progressive deafness in the family should lead the school observer to examine the child more frequently. Interest is centered on endocrine factors and on certain vitamins and minerals. Irrespective of otosclerosis, these are of importance at this time of life.

Archives of Pathology, Chicago

40:209-288 (Oct.) 1945

Effect of Excessive Ingestion of Sodium Chloride on Chick, with Particular Reference to Renal Changes. C. A. Krakower and Marianne Goettsch.—p. 209.
*Structural Changes in Early Filariasis. H. Rifkin and K. J. Thompson. —p. 220.
Changes in Musculature of Gastrointestinal Tract and in Myocardium in Progressive Muscular Dystrophy. Margaret Bevans.—p. 225.
*Structure of Liver in Pellagra. J. Gillman and T. Gillman.—p. 239.
Aging Processes in Endocrine Glands of Guinea Pig: I. Influence of Age, Sex and Pregnancy on Mitotic Activity and Histologic Structure of Thyroid, Parathyroid and Adrenal Glands. H. T. Blumenthal. —p. 264.
Regeneration of Epidermis of Mice Under Influence of 20-Methylcolanthrene. M. Silberberg and Ruth Silberberg.—p. 270.
Microfilarial Granuloma of Spleen: Observations in 12 Additional Cases. R. G. Dhayagude.—p. 275.

Structural Changes in Early Filariasis.—Rifkin and Thompson studied a series of patients from units which had been stationed for thirteen to thirty months in various islands of the South Pacific where filariasis is known to be endemic. They have reviewed a series of lymph nodes and lymphatic vessels from patients suspected of having filariasis on whom biopsies were made at other army medical installations. Their report is based on a detailed study of 30 cases. In the entire series the peripheral blood presented no evidence of microfilarias. Thick and thin smears and Knott concentration methods were utilized. It appears that the adult filaria has the ability to produce a distinct reticuloendothelial response. This response varies with the viability of the parasite. In cases in which a distinct endothelial reaction is induced one must rule out tuberculosis, syphilis and the other chronic granulomas. There appear to be three stages in the genesis of filariasis: the acute stage, manifested by a typical allergic reaction, which may be local or systemic; the subacute or early chronic stage, characterized by the development of a proliferative granulation tissue and occurring in lymphatic tissues harboring the parasites, and late chronic stage of the disease, typified by a nonspecific fibrous tissue overgrowth. Distinct delineation is not possible, one stage merging imperceptibly into the other.

Structure of Liver in Pellagra.—The Gillmans discuss the value of hepatic puncture in estimating the structural modifications in the human liver in pellagra. By an improved liver biopsy technic they removed fragments of liver from 120 patients with pellagra on admission to the hospital. On the basis of the amount, the character and the distribution of fat and pigment and the presence or the absence of cirrhosis, these livers were graded into four main types. In type 1 the characteristic feature is the presence of varying amounts of fat only. This type may

be subdivided into six subtypes according to the quantity, the nature and the distribution of the fat. Type 2 contains cytosiderin and cytolipochrome in the hepatic and Kupffer cells only, distributed in the form of discrete granules. Type 3 is very similar to type 2 except that the iron-containing pigment not only is present in the liver cells and the Kupffer cells but is aggregated in large masses in cells lying either in the hepatic lobule or in the portal tracts. Pigmentary cirrhosis of varying intensity is the main feature of type 4. Livers of types 2, 3 and 4 could exhibit the same degrees of fatty change as described in livers of type 1. The type 1 liver is predominantly a feature of pellagrous infants and children, while the pigmented liver, with or without fat, is found in adolescents and adults. Iron pigment arises within the liver cells as the result of a profound disturbance of intracellular metabolism induced by dietary imbalance. The Gillmans stress that the therapy and the assessment of its effectiveness should be based not only on the clinical picture but on the structural alterations in the liver. In pellagrins the fatty change, the formation of intracellular pigment, with or without cirrhosis, and carcinoma represent different patterns of reactivity of the liver cells to acute and chronic malnutrition.

Archives of Physical Medicine, Chicago

26:677-730 (Nov.) 1945

Physical Therapy in Rheumatoid Arthritis. B. I. Comroe.—p. 677.
Spa Treatment of Rheumatic Diseases in the United States: III. Representative Spas. R. Kovacs.—p. 683.
Palindromic Rheumatism. W. D. Paul and T. L. Carr.—p. 687.
*Studies on Neuromuscular Dysfunction: IV. Neostigmine Therapy of Acute and Chronic Cervical Intramuscular Fibrositis. H. Kabat and C. W. Jones.—p. 691.
Suggestions to Improve Early Treatment of Hand Injuries. S. Bunnell. —p. 693.
Readjustment to Peace—The People's Responsibility. C. C. Burlingame. —p. 697.
Wilhelm Konrad Roentgen: An Anniversary. H. A. Carter and J. S. Coulter.—p. 701.

Neostigmine in Cervical Intramuscular Fibrositis.—Kabat and Jones gave neostigmine to 9 patients with acute cervical intramuscular fibrositis (stiff neck). Rapid relief was effected in all cases. Sometimes one injection was all that was necessary to bring about complete relief within twenty-four hours. One patient with cervical intramuscular fibrositis of six years' duration showed great improvement from neostigmine.

Archives of Surgery, Chicago

51:69-124 (Sept.) 1945

*Gelatin Sponge: Surgical Investigation of New Matrix Used in Conjunction with Thrombin in Hemostasis. R. U. Light and Hazel R. Prentice.—p. 69.
Skin Bacteria: Their Role in Contamination and Infection of Wounds. D. L. Lovell.—p. 78.
*Penicillin in Treatment of Chronic Osteomyelitis: Preliminary Report. J. Buchman and J. E. Blair.—p. 81.
Posttraumatic Renal Injury: Summary of Experimental Observations. A. C. Corcoran and I. H. Page.—p. 93.
Chronic Ulcerative Colitis with Generalized Peritonitis and Recovery: Treatment with Penicillin and Sulfadiazine. W. L. Palmer and W. E. Ricketts.—p. 102.
Surgical Therapy of Patent Ductus Arteriosus: Report of 5 Cases. J. C. Trent.—p. 106.
Ulcerating Lesions of Gastroenteric Stoma. N. E. Tosseland and J. R. McDonald.—p. 113.
Leiomyosarcoma of Uterus with Metastasis to Femur: Report of Case and Review of Literature. W. S. Brooke and J. R. Thomason. —p. 120.

Gelatin Sponge and Thrombin in Hemostasis.—Light and Prentice, who describe surgical investigations on gelatin sponge in animals and in man, conclude that gelatin sponge is an efficient matrix for use in conjunction with thrombin in the "patch technic" of surgical hemostasis. Microscopic studies show that gelatin sponge when implanted on bleeding dura, on uninjured brain or on injured brain provokes a predictable, mild cellular reaction and is absorbed in twenty to forty-five days without residual reaction. The repair of venous sinuses with gelatin sponge leaves the lumen of the vein patent and without evidence of thrombus formation. The use of bovine thrombin in the amounts required for surgical hemostasis in human beings appears to be free from the danger of antigenicity. The "patch technic" of hemostasis is no longer dependent on human blood for its materials.

Penicillin in Chronic Osteomyelitis.—Buchman and Blair made clinical and bacteriologic studies on the results of treatment of chronic osteomyelitis with penicillin with and without surgical intervention on 47 patients presenting a total of 68 lesions. The treatment of chronic osteomyelitis with intramuscular injections and local applications of penicillin without surgical intervention is totally ineffective. If thorough saucerization of the chronic osteomyelitic focus is combined with preoperative and postoperative administration of penicillin and the resulting wound is left to granulate, the penicillin has little beneficial effect. The treatment of chronic osteomyelitis with preoperative and postoperative intramuscular administration of penicillin, thorough saucerization of the focus and primary closure of the resultant wound has given extraordinarily good results in 23 out of 27 cases.

Bulletin of Johns Hopkins Hospital, Baltimore

77:143-290 (Sept.) 1945

*Study of Food Borne Epidemic of Tonsillitis and Pharyngitis Due to Beta-Hemolytic Streptococcus, Type 5. Commission on Acute Respiratory Diseases.—p. 143.
Suppression as Adjunct to Therapy of Malaria in Nonmalarial Areas. R. A. Lewis and F. W. Kibbe.—p. 211.
Study of Spasticity and Paralysis. P. F. Wagley.—p. 218.
Two Cases of Periarteritis Nodosa Occurring in First Month of Life. H. A. Wilmer.—p. 275.

Food Borne Epidemic of Tonsillitis and Pharyngitis.—An epidemic of a food borne streptococcic infection reported by the Commission on Acute Respiratory Diseases occurred at Fort Bragg in November 1943. The epidemic was confined to members of two companies of an airborne infantry regiment. The causative agent was a strain of beta-hemolytic streptococcus of group A, type 5. One hundred patients with type 5 streptococcic infection of the throat were hospitalized from a group consisting of 32 officers and 228 enlisted men. Various types of investigations were carried out. Epidemiologic evidence incriminated creamed eggs as the probable vehicle of infection. The outbreak was explosive in onset, with a median incubation period of thirty-eight hours and a primary attack rate of 42 per cent. Almost all subjects originally infected became clinically ill. The secondary attack rate was 30 per cent, of which half were cases and half carriers. Alternate patients were treated with sulfadiazine. Only a slight decrease in the height and duration of fever resulted from sulfadiazine treatment. While chemotherapy effected striking reductions in total and differential leukocyte counts and in the daily prevalence of beta-hemolytic streptococci in the throat, the changes were transitory and persisted only during treatment. Benefit was not derived from chemotherapy. A significant rise in titer of antistreptolysin or antifibrinolysin was found during convalescence in a high percentage of cases. It is assumed that an antibody response probably occurred in more than 90 per cent of all cases of type 5 streptococcic infection. Similar antibody responses appeared in nearly half of healthy carriers, indicating that a proportion of "healthy" carriers were subclinical cases. Transient carriers did not exhibit an antibody response, while those who carried the organisms for more than ten days did. Subjects with tonsils frequently had confluent exudate, harbored the organisms in large numbers in early cultures and tended to remain chronic carriers. Subjects whose tonsils had been removed had less exudate and fewer streptococci, and they rid themselves of the organisms sooner. Tonsillectomized patients tended to have lower initial levels of antistreptolysin and higher convalescent titers than patients with tonsils. In instances in which sulfadiazine suppressed the growth of streptococci to a considerable degree during the first ten days of illness, an inhibition of antistreptolysin response was demonstrated. Correlation was not found between the severity of illness and either the initial titer of antistreptolysin or the maximum titer during convalescence. The termination or persistence of the convalescent carrier state appeared to be related to the height of the antistreptolysin response.

Bulletin New York Academy of Medicine, New York

21:505-558 (Oct.) 1945

Decompression Sickness and Bubble Formation in Blood and Tissues. E. N. Harvey.—p. 505.
Therapy of Liver Diseases. C. L. Hoagland.—p. 537.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

5:613-734 (Dec.) 1945

*Evaluation of the Untoward Reactions Attributable to Atabrine (Quinacrine). Surgeon General's Office.—p. 653.
*Treatment of Infectious Hepatitis by Diet and Rest. J. D. Hughes. —p. 662.
Anesthesia for Abdominal Surgery Following Trauma. I. Greenfield. —p. 666.
Successful Neurotic Soldier. W. Needles.—p. 673.
Work Furloughs for Patients with Peripheral Nerve Injuries. F. H. Lewey and G. K. Bowles.—p. 683.
Lichen Planus-Eczematoid Dermatitis Complex of Southwest Pacific. E. Epstein.—p. 687.
Reactions to Penicillin. F. E. Cormia, L. Y. Jacobsen and E. L. Smith. —p. 694.
Mobile Medical and Dental Dispensaries. S. A. Effron and R. E. Heaselschwerdt.—p. 703.
Mental Hygiene Unit. A. A. Rosner.—p. 706.
Vitamin C Status of Troops in Tropics. W. R. C. Golden and M. S. Schechter.—p. 710.
Army Institute of Pathology. J. E. Ash.—p. 718.

Untoward Reactions Attributable to Quinacrine.—The report by the Medical Consultants Division of the Surgeon General's Office, based on clinical studies and observations on large groups of patients, emphasizes the following points: 1. The military value of quinacrine in suppressing vivax malaria and curing falciparum malaria far outweighs untoward effects which have been attributed to the use of the drug. 2. Suppressive doses of quinacrine greater than 0.7 Gm. per week should not be employed routinely. This amount has been shown to provide adequate protection against clinical attacks of malaria, provided "quinacrine discipline" is strictly enforced. In clinical treatment of malarial attacks with quinacrine, routine dosage should not exceed 2.8 Gm. in seven days. 3. Quinacrine suppressive medication should be discontinued promptly and quinacrine should not be given for clinical treatment when patients develop atypical lichen planus, unexplained chronic eczematoid dermatoses, unexplained toxic erythematous eruptions, exfoliative dermatitis, severe leukopenia, agranulocytosis and aplastic anemia, acute hepatitis (not including disturbances believed to be due to malaria) or toxic psychoses which can be reasonably attributed to quinacrine after careful clinical study. 4. Drugs other than quinacrine, such as the sulfonamides and arsenicals, may be harmful to patients with the conditions mentioned. 5. Caution should be exercised in attributing disease conditions to quinacrine until complete studies have been made to establish such relationship. Because of the widespread use of quinacrine, its administration inevitably coincides with many diseases with which the drug is not related. Even if a connection is established between quinacrine and a given untoward effect, its significance relative to the military value of quinacrine requires evaluation. Since the use of quinacrine became widespread, clinical attacks of falciparum malaria have been almost eliminated and deaths from malaria have been extremely rare. In general, quinacrine is superior to quinine both for suppression and for clinical treatment.

Diet and Rest in Infectious Hepatitis.—Twenty-six patients with acute primary infectious hepatitis (group A) were treated by strict bed rest and a diet consisting of protein 180 to 200 Gm., carbohydrate 500 to 600 Gm. and fat 50 Gm. per day. Nineteen patients (Group B) were used as controls and were allowed full activity and free choice of food at the ambulatory patients' mess. On the basis of this study Hughes concluded that it is unwise to treat acute infectious hepatitis with jaundice by permitting the patients to be ambulatory during the active phase of the disease and to eat whatever foods they choose. A regimen of bed rest and a high protein, high carbohydrate and low fat diet, as contrasted to a regimen of full activity and regular diet, results in a much greater percentage of patients returned to full duty and a substantial decrease in the period of hospitalization. These conclusions are supported by purely objective data such as the speed of the return of liver size to normal, body weight curves and the speed of return to normal of the icterus index and the blood phosphatase and cephalin cholesterol tests. Further studies will have to determine which of the two factors bed rest or diet is the more important in the treatment of infectious hepatitis.

Canadian Journal of Public Health, Toronto

36:413-454 (Nov.) 1945

Child Health Program. J. M. Hershey.—p. 413.
Epidemic of Septic Sore Throat at Salmon Arm. B. C. R. Bowering, J. M. Hershey, J. A. Taylor, Eileen Jones and E. B. Winstanley. —p. 419.
Mortality Reductions in Ontario, 1900-1942: IV. Tuberculosis. N. E. McKinnon.—p. 423.
Incidence of Pinworm Infection in a Military Camp in Ontario. E. Kuitunen-Ekbaum.—p. 430.

Canadian Medical Association Journal, Montreal

53:421-526 (Nov.) 1945

Rehabilitation of War Personnel Subjected to Aural Trauma. D. S. McEachern.—p. 421.
*Subacute Bacterial Endocarditis with Cerebral Embolism Successfully Treated with Penicillin and Heparin. E. T. Green.—p. 425.
Mucosal Respiratory Syndrome. J. H. Stanyon and W. P. Warner. —p. 427.
Place of Protein in Diet of Pregnant Patient. M. Blair, M. T. Porter and L. A. Atkinson.—p. 434.
Management of Nerve Injuries in Late Stages. F. Turnbull.—p. 438.
Malignant Thymoma. F. N. Wilson and J. E. Pritchard.—p. 444.
Two Cases of Anterior Mediastinal Abscess. M. Aronovitch and A. M. Vineberg.—p. 455.
Tick Borne Diseases of Man in Alberta. M. R. Bow and J. H. Brown. —p. 459.
Hemangioma Pontis. R. Altschul.—p. 465.
Significance of Recurrent Osgood-Schlatter Strain. O. T. Steen.—p. 468.
*Penicillin in Hemolytic Streptococcal Infection of Throat. J. D. Keith, E. T. Bynoe, J. Maclennan, J. Williamson, J. Carpenter and C. Armstrong.—p. 471.
Survey of Noneffective Medical Reboards, Canadian Army Overseas, July to December 1944. D. G. H. MacDonald and I. L. Wellwood. —p. 478.
Treatment of Asthma. G. D. Stanley.—p. 482.

Penicillin and Heparin in Subacute Bacterial Endocarditis with Cerebral Embolism.—Green reports that, following the detection of Streptococcus viridans in three blood cultures, taken on successive days, of a woman aged 25, who first came under observation because of cerebral embolism, penicillin and heparin were given over ten days until a total of 1,200,000 units of penicillin and 200 cc. of heparin had been administered. One week after completion of the course of treatment the patient was sitting out of bed and six days later was allowed to go home. The treatment seems to have had a favorable influence in recovery from the effects of the embolism.

Penicillin in Hemolytic Streptococcic Throat Infections.—Keith and his co-workers studied cases of acute pharyngitis in the Canadian navy presenting hemolytic streptococci (group A) in throat cultures. The immune response in the blood stream was studied by doing antistreptolysin titers at the onset of the infection and after one month. Since a definite rise in titer is accepted as evidence of a streptococcic infection, the authors had a group of cases in which the diagnosis was certain. Penicillin was administered by the intramuscular route, 20,000 units every four hours, six times daily, until 360,000 units had been injected. This therapy was given to every other patient. The alternate patients were controls and were treated symptomatically. The total number of patients studied was 135; 59 of these were treated with penicillin by intramuscular injection, while 56 were treated symptomatically; 20 were treated with penicillin orally. The average length of time the temperature remained elevated after admission in the penicillin treated group was 3.1 days. In the symptomatically treated control group it was 4.9 days. Of the patients with proved streptococcic infection treated with penicillin 30 per cent continued to harbor hemolytic streptococci at one week and 13 per cent at one month. In the symptomatically treated controls 100 per cent continued to harbor these organisms at one week and 60 per cent at one month. It required six days' therapy to treat adequately the sore throats due to hemolytic streptococci. It also required six days' therapy to rid the throat of the offending organisms and prevent their return in the majority of cases. Penicillin administered orally in adequate quantities by the technic of Little and Lumb was effective therapeutically and also in ridding the throat of hemolytic streptococci.

Cincinnati Journal of Medicine

26:417-496 (Nov.) 1945

Studies on Natural History of Poliomyelitis. A. B. Sabin.—p. 417.
Present Status of Oral Administration of Penicillin: Review. R. R. Suskind.—p. 446.

Delaware State Medical Journal, Wilmington

17:187-200 (Oct.) 1945

Our Society. I. L. Chipman.—p. 187.
Wartime Health and Education and Its Significance in Peacetime Medical Care. J. M. Tunnell.—p. 189.
Chronic Arteriovenous Fistula of Traumatic Origin. R. A. Mino.—p. 194.

Florida Medical Association Journal, Jacksonville

32:219-276 (Nov.) 1945

Role of Pediatrician and General Practitioner in Diagnosis and Treatment of Behavior Problems in Children. H. C. Miller.—p. 245.
Infectious Mononucleosis: Typhoid Type. M. S. Saslaw.—p. 254.

32:277-336 (Dec.) 1945

Studies on Readministration of Sulfathiazole. R. H. Nickau.—p. 303.
History of Medicine in Duval County: Part VII. W. Merritt.—p. 305.

Gastroenterology, Baltimore

5:85-154 (Aug.) 1945

*Symptoms Following Partial Gastric Resection. J. M. Berkman and F. J. Heck.—p. 85.
Massive Hematemesis of Undetermined Origin. I. R. Jankelson.—p. 96.
Diverticulitis of Jejunum with Perforation. M. W. Shutkin.—p. 102.
Carcinoma of Esophagus: Survey of 332 Cases. E. Boros.—p. 106.
Significance of Chronic Gastritis in Army General Hospital. J. G. Cutler and J. E. Walther.—p. 112.
Experimental Cholecystitis: II. Histologic Study. M. E. Rehfuss and G. M. Nelson.—p. 117.
*Effect of Vagotomy and Atropine on Caffeine Stimulation of Gastric Secretion. J. A. Roth and A. C. Ivy.—p. 129.
Congenital Absence of Cardia: Case. W. C. Alvarez.—p. 135.

Symptoms Following Partial Gastric Resection.—The most commonly accepted explanation of the postprandial symptoms known as the dumping syndrome following partial gastric resection is jejunal distention. The inanition which may occur as a result of the postprandial symptoms may be overcome by placing the patient on a high protein diet, starting with a small amount of bulk and gradually increasing the bulk to that amount represented by 2,500 calories. By this method, without increasing the amount of bulk further, a diet with a caloric value of 3,200 calories may be reached which will insure a progressive increase in weight without increasing the severity of the postprandial symptoms. A group of patients who have experienced nausea to a sufficient degree to prevent the eating of several nonconsecutive meals each week has been observed. The nausea was not associated with postprandial symptoms and did not follow the taking of food. A number of patients have been seen who, although they had been symptom free after partial gastric resection, found it impossible to eat enough in the usual three daily meals to regain weight lost after operation. By the dietary method described, a progressive gain in weight was brought about without postprandial discomfort. In some cases hypochromic microcytic anemia developed after partial gastric resection and failed to respond to the usual treatment for hypochromic anemia. The value for hemoglobin improved after a high protein diet with a caloric value of 3,200 calories had produced an increase in weight.

Caffeine Stimulation of Gastric Secretion.—Roth and Ivy demonstrated that caffeine is a potent stimulus of the secretion of acid and pepsin. A synergistic relation exists between caffeine and histamine with regard to the secretion of hydrochloric acid. The authors attempted to determine whether caffeine stimulated the secretion of hydrochloric acid by acting on the central or on the peripheral vagal secretory mechanisms. Tests were made on several groups of cats and on 7 human subjects. The stomach of a cat responded to caffeine by an increased output of acid after bilateral vagotomy or 1 mg. of atropine sulfate subcutaneously. The stomach of man responded to caffeine by an increased output of acid after the administration of 1 mg. of atropine sulfate subcutaneously. The evidence indicates that caffeine stimulates gastric secretion by acting peripherally on some mechanism in the gastric mucosa, probably directly on the parietal cells, since the evidence is not entirely consonant with the view that caffeine causes the release of histamine. The possibility that caffeine may also stimulate gastric secretion in part by acting centrally still exists. The failure of the gastric secretory mechanism of the dog to respond to caffeine is unexplained.

Iowa State Medical Society Journal, Des Moines

35:329-460 (Nov.) 1945

Papillomas of Verumontanum. E. M. Honke.—p. 427.
Reactions (Pale-Outs) in Blood Donors. C. M. Zukerman.—p. 428.
Speech Rehabilitation After Laryngectomy. C. R. Strother.—p. 433.

35:461-508 (Dec.) 1945

Dengue: Report of Epidemic. W. M. Block.—p. 461.
Role of Sanatorium in Postwar Period. W. M. Spear.—p. 467.
Surgical Treatment of Carcinoma of Rectum. E. L. Besser and J. W. Dulin.—p. 468.

Journal of Infectious Diseases, Chicago

77:85-175 (Sept.-Oct.) 1945

Irradiation Effects on Genetic Resistance of Mice to Mouse Typhoid. J. W. Gowen and M. R. Zelle.—p. 85.
Common Antigens Among Filarial and Other Nematode Parasites of Man. J. Oliver-González and F. Hernández Morales.—p. 92.
Problem of "Dangerous Carrier" of Hemolytic Streptococci: II. Spread of Infection by Individuals with Strongly Positive Nose Cultures Who Expelled Large Numbers of Hemolytic Streptococci. M. Hamburger Jr., Margaret J. Green and Virginia G. Hamburger.—p. 96.
Inflammatory Reactions in Skin of Normal and Immune Canaries and Monkeys After Local Injection of Malarial Blood. W. H. Taliaferro and W. Bloom.—p. 139.
Determination of Antitrypanosome Effect of Antimonials in Vitro. G. Chen and E. M. K. Geiling.—p. 139.
Toxoplasmosis in Monkey: Acute Fatal Infection Experimentally Produced in Young Macaca Mulatta. D. Cowen and A. Wolf.—p. 144.
Increased Parasitemia in Chicken Malaria (Plasmodium Gallinaceum and Plasmodium Lophurae) Following X-Irradiation. W. H. Taliaferro, Lucy G. Taliaferro and E. L. Simons.—p. 158.

Journal of Lab. and Clinical Medicine, St. Louis

30:899-974 (Nov.) 1945

Antitubercular Activity of Aspergillic Acid and Its Probable Mode of Action. A. Goth.—p. 899.
*Serologic Reactions in Primary Atypical Pneumonia. A. L. Florman and Alice B. Weiss.—p. 902.
Phagocytic Activity of Neutrophils in Anemias. L. J. Berry, Jane Davis and T. D. Spies.—p. 910.
*Fatal Secondary, Toxic Thrombocytopenic Purpura Due to Sodium Salicylate: Report of a Case. A. E. Rappoport, C. E. Nixon and W. A. Barker.—p. 916.
Morphology of Erythrogenic Reticulum of Bone Marrow in Addison-Biermer's Disease in Relapse and Early Remission as Seen by Imprint Method, with Reference to Myelogenic and Megakaryocytogenic Reticulum. E. M. Schleicher.—p. 928.
Choleretic Action of Allyl Ester of Cinchophen (Atoquinol). E. M. Boyd, K. L. Clark and R. C. Elliott.—p. 943.
Anticonvulsant Effects of Steroids. E. Spiegel and H. Wycis.—p. 947.
Certain Aspects of Bronchial Reflexes Obtained by Stimulation of Nasopharynx. J. E. Rall, N. C. Gilbert and Ruth Trump.—p. 953.

Serologic Reactions in Primary Atypical Pneumonia.—Florman and Weiss made serologic tests on serial specimens of serum from 68 patients with a clinical diagnosis of primary atypical or viroid pneumonia. The tests included the cold agglutinin, indifferent streptococcus agglutinin, elementary body type virus complement fixation and the Kahn flocculation and Kolmer complement fixation tests for syphilis. Almost two thirds of the patients were found to have positive cold agglutinin reactions, nearly half developed positive streptococcus agglutinin reactions, more than a fourth had positive elementary body type virus complement fixation reactions and a sixth had transitory positive Kahn and Kolmer tests. These results were significantly different from those found in 32 control serums. It was demonstrated that a positive streptococcus agglutinin test is more likely to occur in a patient with a positive cold agglutinin reaction, that the majority of persons with positive elementary body type of complement fixation tests do not have positive cold agglutinin tests and that there is no apparent relationship between the occurrence of any of these reactions and transitory positive Kahn and Kolmer tests for syphilis. In a group of 73 consecutively received serums from patients with primary atypical pneumonia only 2 significantly high heterophil titers and 1 Weil-Felix titer were found. The frequency with which the cold agglutinin antibodies and the other previously mentioned antibodies are found to develop in patients convalescing from primary atypical pneumonia suggests an immunologic association with the etiologic agent (or agents) of the disease. The many combinations of response which are measured by the tests reported here may be the reflection of individual variation or of several different agents producing the same syndrome. Until

the etiologic agent for the majority of instances of primary atypical or viroid pneumonia is identified, these tests serve the practical purpose of more clearly defining the disease.

Fatal Thrombocytopenic Purpura Due to Sodium Salicylate.—Rappoport and his associates, in reporting an instance of secondary thrombocytopenic purpura caused by sensitization to sodium salicylate fatal to a man aged 35, base the causal relationship on the proved history of sensitization to sodium salicylate, the absence of exposure to any other chemical or infectious agent, the morphologic characteristics of the megakaryocytes, the metaplastic appearance of these elements in the spleen and the failure of splenectomy to improve a thrombocytopenic purpura.

Journal-Lancet, Minneapolis

65:351-380 (Oct.) 1945

Thyrotoxicosis. H. O. Drew.—p. 351.
Medical Leadership in Public Health. C. C. Applewhite.—p. 355.
Problem of Deformity in Poliomyelitis. J. A. Key.—p. 358.

65:381-414 (Nov.) 1945

Consideration of Two Cardiac Diseases Amenable to Surgical Treatment. A. R. Barnes.—p. 382.
Factors in Prognosis in Coronary Disease. H. W. Gregg.—p. 385.
Management of Common Cardiac Irregularities. R. O. Goehl.—p. 391.
Objective Tests of Cardiac Function. G. N. Aagaard.—p. 394.
Rupture of Heart: Review and Case Report. J. L. Diamond.—p. 396.
Digitalis: Its Legitimate Field of Usefulness. P. P. Ewald.—p. 398.
Treatment of Rheumatic Fever. M. J. Shapiro.—p. 400.

Journal of the Mount Sinai Hospital, New York

12:851-906 (Sept.-Oct.) 1945

Aspects of Transmission of Nervous Impulse: II. Theoretical and Clinical Implications. O. Loewi.—p. 851.
Studies on Extractable Factors in Spleen and Other Organic Sources Which Influence Blood Platelet Count. S. E. Moolten.—p. 866.
Correlations Between Electroencephalogram and Histologic Structure of Gliogenous and Metastatic Brain Tumors. L. Greenstein and H. Strauss.—p. 874.
Reminiscences 1900-1937. R. T. Frank.—p. 878.
Life's Later Years: Studies in the Medical History of Old Age. F. D. Zeman.—p. 890.

Journal of Urology, Baltimore

54:357-408 (Oct.) 1945

New Technic of Simultaneous Bilateral Ureterointestinal Anastomosis: Report of Experimental Study. A. Davalos.—p. 357.
*Lumbar Ureterolithotomy: Foley Operation. C. L. Prince.—p. 368.
Congenital Valve in Upper Ureter. J. T. MacLean.—p. 374.
Unilateral Triplication of Ureter and Renal Pelvis. J. T. MacLean and E. W. Harding.—p. 381.
Use of Thrombin (Topical) in Control of Bleeding Associated with Prostatic Surgery. H. L. Boyd.—p. 385.
Incarceration of Penis. H. A. Hoffman and F. H. Colby.—p. 391.
Use of Antidiuretic Property of Pitressin in Excretory Pyelography. R. Lich Jr. and P. J. Lewis.—p. 400.
Sulfadiazine Anuria with Urethral Stricture. I. Gersh and M. A. Magid.—p. 403.
Application of New Plastic Cast Material in Urology. C. D. Goodhope.—p. 406.

Lumbar Ureterolithotomy.—Prince believes that Foley's lumbar ureterolithotomy should be performed immediately in all cases of calculi in the upper third of the ureter, unless they are of such small size that they give great promise of spontaneous passage within a brief period. This operation is carried out through an incision 7 to 8 cm. in length without the cutting of a muscle; the ureter is never freed from its bed, and there is a minimum of retroperitoneal dissection. The operation is of admirable anatomic design, quick, bloodless and effective.

Kentucky Medical Journal, Bowling Green

43:291-320 (Nov.) 1945

The Country Doctor—Past and Present. J. W. Stovall.—p. 292.
Future of Rural Medicine in Kentucky. D. G. Miller Jr.—p. 295.
Pain, a Discussion of Recent Progress. A. Wikler.—p. 298.
The Diagnosis of Cephalopelvic Disproportion. W. T. McConnell.—p. 303.
Bleeding in the Last Trimester of Pregnancy. R. F. Vogt.—p. 307.
Obstetric Anesthesia. S. S. Clark.—p. 308.

43:321-344 (Dec.) 1945

Backache. R. T. Hudson.—p. 324.
Penicillin in Treatment of Syphilis. C. G. Baker.—p. 327.
Abuse of Bed Rest in Surgery. J. A. Stoeckinger.—p. 333.
Presacral Nerve Resection. D. L. Peterson.—p. 337.

Michigan State Medical Society Journal, Lansing

44:1053-1080 (Oct.) 1945

A Doctor's Life. A. S. Brunk.—p. 1053.
Problems Arising from Michigan's New Compensation Law. T. P. Ryan.—p. 1056.
Selective Placement of Workers: A Medical Man's Viewpoint. F. E. Poole.—p. 1060.
Psychosomatic Medicine in Industry. H. G. Ross.—p. 1067.
Role of General Practitioner in Tuberculosis Control. H. E. Hilleboe and E. J. Gillespie.—p. 1071.

Military Surgeon, Washington, D. C.

97:355-440 (Nov.) 1945

Diagnosis and Treatment of Trachoma: Report of 19 Cases in Military Personnel. P. Thygeson.—p. 355.
Abdominal Pain and Its Interpretation. W. C. Brown.—p. 361.
Cryptorchism: Discussion and Report of 113 Cases. R. L. Fruin.—p. 365.
Muscle Hernia, with Report of 6 Additional Cases in Arm and Leg. H. E. Simon.—p. 369.
Malignant Synovioma: Case Report. J. J. Bedrick and S. A. Zawadzki.—p. 374.
Atypical Pneumonia at an Air Base in India During Winter of 1944-1945. J. H. Hafkenschiel.—p. 377.
Effectiveness of A Nitrofuran in Treatment of Infected Wounds: I. Preliminary Report. M. L. Snyder, C. L. Kiehn and J. W. Christopherson.—p. 380.
Background of Military Psychoneuroses. L. S. Lipschutz.—p. 384.
Treatment in an Army Neuropsychiatric Hospital. J. L. Morrow.—p. 388.
Bilateral Crush Injury to Thorax with Death: Case. W. A. Barrett.—p. 394.
Details of Design Needed for Improved Sanitation in Mess Halls. G. S. Bell.—p. 396.
Equipment for Disseminating DDT, Residual Type, Sprays and Dusts. B. Heinemann.—p. 399.
Discussion of Certain Aspects of Normal Liver and of Laënnec's Cirrhosis of Liver, Illustrated by 2 Cases. T. M. Downs Jr.—p. 405.

Minnesota Medicine, St. Paul

28:785-872 (Oct.) 1945

Abuse of Prolonged Rest in Aged. J. F. Norman.—p. 803.
Thrombosis and Embolism of Abdominal Aorta. J. L. Diamond.—p. 810.
Congenital Atresia of Biliary Tract. R. E. Nutting and A. H. Wells.—p. 810.
Last Twenty-Five Years in Country Practice. S. Ericson.—p. 815.

28:873-960 (Nov.) 1945

Pathologic Conditions in Bronchi and Esophagus. V. J. Schwartz.—p. 897.
Laboratory Aids in Early Recognition of Liver Disease. F. W. Hoffbauer.—p. 903.
Complications of Pneumonia. J. F. Briggs.—p. 907.
*Total Excision of Patella for Arthritis of Knee. H. H. Young and J. M. Regan.—p. 909.
Summary of Neurosurgical Cases Treated in U. S. Army. W. P. Ritchie, L. A. French and L. A. Titrud.—p. 914.

Excision of Patella.—The report by Young and Regan is based on 21 cases of arthritis of the knee in which excision of the patella was performed at the Mayo Clinic. Fourteen of the patients had osteoarthritis of the knee with moderate or severe involvement of the patella. In 6 cases the arthritis was of the rheumatoid type. In the remaining case, traumatic arthritis had followed recurrent dislocation of the patella. The ages of the patients ranged from 18 to 66 years. Both patellas were excised in 5 of the cases. All of the patients complained of pain in the knee with use. Sixteen of the patients had flexion deformities of the involved knee and only 3 patients had normal motion before operation. The remaining 2 patients had complete extension but limited flexion of the involved knee. The excision of the patella was accomplished through either a vertical or a parapatellar incision, and care was taken to suture the reflected portions of the patellar tendon with either chromic catgut or silk sutures after the enucleation of the patella. Postoperative immobilization in extension was maintained for seven to ten days by means of a plaster cast. At the end of this period, physical therapy was started. In some cases motion was regained early, while in others several months were required for the return of motion. In 7 of the 14 cases of osteoarthritis the results were excellent, no pain remaining in the involved knee. The leg can be extended to an angle of at least 170 degrees and flexed to an angle of at least 90 degrees. In the remaining 7 cases of osteoarthritis the results were good in 4, fair in 2 and poor in 1 case. In the cases in which the results were classified as good the pain was relieved but there still was some limitation of motion. In the cases in which the

results were classified as fair the pain was relieved almost completely but the range of motion was only a few degrees. In the case in which the results were poor a painful genu varum developed as a result of a destructive process in the medial tuberosity of the tibia. In 4 of 6 cases of rheumatoid arthritis less pain remains than before the operation. Good results were obtained in the 1 case of traumatic arthritis.

New England Journal of Medicine, Boston

233:485-514 (Oct. 25) 1945

*Absorption, Excretion and Toxicity of Streptomycin in Man. D. G. Anderson and Marjorie Jewell.—p. 485.
Reconstructive Surgery of War Wounded. P. D. Wilson.—p. 492.
Pathogenesis of Renal Insufficiency. S. E. Bradley.—p. 498.
Multiple Cysts of Femur? Excessive Callus Formation?—p. 504.
Osteoid Osteoma of Humerus.—p. 508.

233:515-546 (Nov. 1) 1945

Unusual Aspects of Cancer of Breast. E. M. Daland.—p. 515.
Boston Medical Library. D. Cheever and H. R. Viets.—p. 520.
Liver Abscess, Pneumonia and Empyema Due to Friedländer's Bacillus in Diabetes Mellitus: Report of 2 Cases with Recovery in 1. E. P. Sheridan.—p. 528.
Pathogenesis of Renal Insufficiency. S. E. Bradley.—p. 530.
Acute and Chronic Salpingo-Oophoritis, with Bilateral Tubo-Ovarian Abscesses.—p. 536.
Rupture of Arteriosclerotic Fusiform Aneurysm of Abdominal Aorta. —p. 540.

Absorption, Excretion and Toxicity of Streptomycin in Man.—Anderson and Jewell studied the absorption and excretion of streptomycin in man. The subjects used for the pharmacologic studies were adult ward patients. Streptomycin was dissolved in distilled water for intravenous, intramuscular and subcutaneous administration in concentrations varying from 50,000 to 150,000 units per cubic centimeter. The solutions used for intrathecal administration varied in concentration from 2,500 to 5,000 units per cubic centimeter. The solutions of the drug were stored at 5 C. until time of use. The authors point out that a unit of streptomycin represents a much smaller amount of antibacterial activity than a unit of penicillin. Thus, when the action of the two substances is studied against Staphylococcus aureus (strain SM), an organism against which both drugs are active, it is found that the growth of this organism is completely inhibited by 0.08 unit of penicillin, whereas the smallest amount of streptomycin that causes complete inhibition is 1 unit. A unit of penicillin represents approximately twelve times as much antibacterial activity for this test organism as does a unit of streptomycin. On the basis of studies on the absorption of streptomycin with various routes of administration, the authors assert that streptomycin is not absorbed after oral administration in amounts sufficient to produce detectable concentrations of the drug in the serum. The failure of the drug to be absorbed from the gastrointestinal tract is not due to the inactivation of streptomycin by the gastric juice. The curves of the serum concentrations of the drug after the intramuscular or intravenous injections do not differ significantly except during the first few minutes after injection. Following the intramuscular or intravenous administration of a single dose of streptomycin, 46 to 87 per cent of the dose injected can be recovered in the urine within twenty-four hours. Streptomycin is excreted more slowly by the kidneys than is penicillin. It appears likely that effective blood levels of streptomycin can be maintained by administering the drug at intervals of six to eight hours. In patients with meningitis, streptomycin diffuses to a slight extent from the blood into the cerebrospinal fluid. The intrathecal administration of streptomycin in doses up to 20,000 units does not produce signs of meningeal irritation. With doses of 10,000 to 20,000 units an appreciable concentration of the drug can be maintained in the cerebrospinal fluid for at least twenty-four hours. No serious toxic reactions follow the injection of single doses of streptomycin in amounts up to 600,000 units or after the continued administration of the drug for periods of two to three weeks in doses totaling 2,725,000 to 18,150,000 units. The intravenous and subcutaneous injection of concentrated solutions of the present preparations of streptomycin causes too much discomfort to warrant the use of these methods of administration. The drug can be administered in an intravenous infusion without the production of unpleasant symptoms. Intramuscular injections are fairly well tolerated for periods up to one to two weeks. Therapy continued beyond these times may cause severe discomfort.

New Orleans Medical and Surgical Journal

98:145-194 (Oct.) 1945

Treatment of Leprosy with Diasone: Preliminary Report. G. H. Faget and R. C. Pogge.—p. 145.
Endemic (Murine) Typhus Fever in Louisiana. R. L. Pullen and B. M. Stuart.—p. 150.
Ruptured Right Ethmoids with Orbital Cellulitis. H. A. Thomas.—p. 154.
Some Notes on Early History of Pulmonary Tuberculosis in Louisiana. W. D. Postell.—p. 155.
History of Blood Transfusion. T. G. Baffes.—p. 159.

New York State Journal of Medicine, New York

45:2127-2238 (Oct. 15) 1945

*Abnormalities of Parathyroid-Calcium-Phosphorus-Vitamin D Complex. J. F. Hart and J. R. Lisa.—p. 2173.
Diagnosis of Loeffler's Syndrome: Transient Lung Infiltration with Eosinophilia. E. E. Gottdiener.—p. 2179.
*Inhibition of Dental Caries by Ingestion of Fluoride-Vitamin Tablets. L. P. Strean and J. P. Beaudet.—p. 2183.
Results in Treatment of Skin Cancer. L. B. Goldman.—p. 2186.
Reiter's Disease: Report of Case Successfully Treated. A. Strachstein. —p. 2190.
Intrasternal Administration of Pentothal Sodium. S. L. Lieberman. —p. 2191.

45:2239-2350 (Nov. 1) 1945

War Neurosis As It Is Related to Psychosomatic Medicine. F. Kennedy. —p. 2285.
Tropical Diseases in Returning Soldiers. G. C. Shattuck.—p. 2291.
Recent Trends in Urology and Their Application to General Practice. A. M. Crance.—p. 2295.
Psychosomatic Aspects of Gynecology and Obstetrics. G. W. Kosmak. —p. 2298.
Puerperal Inversion of Uterus: Report of 3 Cases. Clara Benson. —p. 2305.
Intra-Abdominal Hernia with Acute Intestinal Obstruction. L. K. Stalker.—p. 2307.

45:2399-2462 (Nov. 15) 1945

Tropical Diseases, with Spcial Reference to Filariasis (Wuchereria Bancrofti). H. W. Brown.—p. 2405.
Uremia: Diagnostic Pitfalls and Therapeutic Problems. J. Sachs. —p. 2412.
Umbilical Changes During Pregnancy. L. Drosin.—p. 2417.
Trends in Medical Care Insurance in New York State. G. P. Farrell. —p. 2419.
Role of Trauma in Acute Coronary Thrombosis: Clinical Study of 200 Cases. G. A. Race.—p. 2422.
Lead Poisoning in a Furrier. A. Schick.—p. 2423.
Malaria Due to Plasmodium Falciparum in New York. H. B. Shookhoff and P. Strax.—p 2425.

45:2463-2590 (Dec. 1) 1945

Summary of Problems of Sulfa and Penicillin Fastness. M. L. Tainter. —p. 2509.

Abnormalities of Parathyroid - Calcium - Phosphorus - Vitamin D Complex.—Hart and Lisa report 9 cases classified as abnormalities of the parathyroid-calcium-phosphorus-vitamin D complex among 91,000 admissions to the City Hospital during the decade of 1935 to 1944. There were 3 patients, 2 women and 1 man, with adenoma of the parathyroid, and 4 patients with bone cysts (1 man, 2 women and 1 boy); 1 case in a man was diagnosed as osteogenesis imperfecta and 1 case in a woman as tetany due to calcium deficiency. There were 7 of the 9 cases in which bone changes were outstanding, 1 case in which kidney changes predominated and 1 in which tetany was the most prominent clinical symptom. Two of the 9 patients had complications. Nephritis and uremia developed in case 2, and there was a history of epilepsy in case 8. There were 3 cases with definite hypercalcemia (those with proved adenoma), 1 with mild hypercalcemia (11.9 mg.), 1 with high normal (11.2 mg.), 1 with both hypocalcemia and hypercalcemia, 1 with normal values, 1 with hypocalcemia and 1 not taken. Except for the second patient, who developed hyperphosphatemia and died in uremic coma, the blood phosphorus stayed within normal bounds. The phosphatase reports were meager. In cases 1 and 2 there was evidence of bone disorder. Removal of a parathyroid adenoma was successful in stabilizing the blood calcium in 3 cases. The first 2 patients developed tetany on about the fifth post-

operative day. The therapeutic response to large doses of calcium with parathyroid extract or large doses of vitamin D was satisfactory in all 3 cases. The 4 cases of bone cysts were successfully handled by local surgery. Laboratory studies gave little evidence of a systemic calcium-phosphorus-phosphatase upset, but the pathologic change in the cyst is identical with that found in the generalized form associated with hyperparathyroidism and thereby seems to be a related condition. The eighth case in this series, with a history of epilepsy and with pathologic fractures, bone changes and positive changes in the calcium levels of the blood, points strongly to a parathyroid adenoma; it might have been better diagnosed with present day methods. The ninth case presents a rare type of spontaneous tetany in an elderly person with bone changes but without kidney changes. It could very well have been a lack of vitamin D, as it responded to the usual rickets treatment. The Sulkewitz test for calcium in the urine was employed only once and that time gave evidence of hypercalciuria. Although this test is crude and is influenced by the calcium in the diet, it is useful. No case in this category should go without some estimation of the urine calcium excretion.

Inhibition of Dental Caries by Ingestion of Fluoride-Vitamin Tablets.—Strean and Beaudet report clinical trials with calcium fluoride-vitamin D in children between the ages of 8 and 13. One hundred and seventy-one children were studied in the first series. These were divided into 3 groups of 57 each. The first group received a yellow tablet containing 3 mg. of calcium fluoride, 30 mg. of ascorbic acid and 400 units of vitamin D as calciferol one tablet a day; the second group received one white tablet containing only 3 mg. of calcium fluoride. The third group served as the control and did not receive any tablets. The experiment lasted for six months, and the study was limited to permanent teeth. Sixty children were studied in the second series. Thirty children were given one yellow tablet a day, and the other group of 30 served as controls and did not receive any tablets. This study was continued for eight months. The children in both series lived in an orphanage under similar conditions of diet, and each child had at least three cavities as judged by x-ray. In addition to these two series, tablets were given to a number of dentists who were to distribute them to patients between the ages of 8 and 16. Children between the ages of 8 and 16 not receiving fluorine in their water or food may expect on the average an increase of 40 to 65 per cent in the incidence of dental caries. When calcium fluoride was given to the children in the first series the increase in caries was reduced to 27 per cent, and when vitamins C and D were combined with the tablet the incidence was reduced further to 24 per cent. In the second series, even though this experiment ran two months longer than the first one, the increase dropped to 10 per cent as compared to 24 per cent in the first experiment. It is suggested that this decrease may be explained by the synergistic action of vitamins C and D with fluorine. Fluorapatite may be adsorbed from the surface of tooth enamel and is resistant to bacterial decomposition and lactic acid digestion. Fluorine combined with vitamins C and D in the form of a tablet offers a means of controlling the amount of fluorine to be ingested.

Northwest Medicine, Seattle

44:303-342 (Oct.) 1945

Abnormalities of Conjugate Ocular Movements. S. E. C. Turvey.—p. 306.
Administration of Penicillin: Simplified Technic. N. W. Clein.—p. 309.
Streptococcic Dissociation in Otitis and Mastoiditis. E. E. Brown.—p. 311.
Arteriography in Diagnosis of Upper Abdominal Conditions. O. A. Nelson.—p. 314.

44:343-374 (Nov.) 1945

Investigation of Blood Transfusion Reactions. J. R. Czajkowski.—p. 347.
Ombredanne Operation for Undescended Testicle: Cryptorchism. J. P. Schutt.—p. 349.
Rapid and Intensive Treatment of Syphilis and Gonorrhea: Report of 748 Discharged Cases, Clark County-Vancouver Health Department. S. P. Lehman, Jean H. Basilicato and Lila Anderson.—p. 351.
Correction of Chordee and Hypospadias. C. D. Goodhope.—p. 356.

Public Health Reports, Washington, D. C.

60:1323-1354 (Nov. 9) 1945

Industrial Mental Hygiene Program for Federal Employees. J. W. Cronin, B. Solby and W. S. Wilder.—p. 1323.
Effect of Temperature on Sex Ratio of Xenopsylla Cheopis Recovered from Live Rats. L. C. Cole.—p. 1337.

60:1355-1382 (Nov. 16) 1945

Studies of Acute Diarrheal Diseases: X D. Further Studies on Relative Efficacy of Sulfonamides in Shigellosis. J. Watt and S. D. Cummins.—p. 1355.
Plague Infection Reported in United States During 1944 and Summary of Human Cases, 1900-1944. B. C. Hampton.—p. 1361.
Plague Infection Reported in Territory of Hawaii During 1944 and Summary of Human Cases, 1899-1944. B. C. Hampton.—p. 1365.
Local Health Units for Nation. G. T. Palmer.—p. 1368.

60:1383-1414 (Nov. 23) 1945

Studies of Role of Fungi in Pulmonary Disease: I. Cross Reactions of Histoplasmin. C. W. Emmons and B. J. Olson.—p. 1383.
Health Education in Public Health Program. M. Derryberry.—p. 1394.

Southern Medical Journal, Birmingham, Ala.

38:707-772 (Nov.) 1945

*Observations on Antianemic Properties of Synthetic Folic Acid. T. D. Spies, C. F. Vilter, Mary B. Koch and Margaret H. Caldwell.—p. 708.
Urinary Calculosis as Phase of Crystallizing Pyelonephritis. L. D. Keyser.—p. 709.
*General Manifestations of Salicylism. C. M. Caravati and C. B. Whims.—p. 722.
Acute Barbiturate Poisoning. W. E. Percy Jr. and J. S. LaDue.—p. 726.
Nutritional Deficiency as an Etiologic Factor in Icterus Accompanying Pneumonia in the Negro: II. Value of Brewers' Yeast in Preventing Icterus in Pneumonia. M. J. Bent, E. L. Turner, G. D. Halloway and J. R. Cuff.—p. 730.
*Newer Aspects of Erythrocyte Formation and Its Clinical Significance: Preliminary Note. J. E. Sherman.—p. 733.
Acute Porphyria: Report of 2 Cases. S. C. Little and F. E. Rose.—p. 737
March Hemoglobinuria, with 2 Case Reports. R. G. Fleming and J. M. Kinsman.—p. 739.
Surgical Treatment of Hyperthyroidism. G. T. Howard Jr.—p. 742.
Splenic Rupture in Therapeutic Malaria. W. R. Moses.—p. 745.
Abdominal Pregnancy: 3 Cases of Near or Past Term with 1 Case of Early Abdominal Pregnancy. G. G. Greene.—p. 747.
Bilateral Mastoiditis in 8 Weeks Old Baby, June 1945. P. L. Mahoney.—p. 752.
Peptic Ulcer as Cause of Abdominal Symptoms in Congestive Heart Failure. J. A. Boone, R. R. Coleman and S. Prystowsky.—p. 753.
Causal Relationship Between Os Calcis and Shape of Leg. M. Eichwald.—p. 755.
Erysipelas on the Isthmus of Panama. W. C. Miller, H. A. Tucker and B. H. Kean.—p. 757.
Scarlet Fever on the Isthmus of Panama. H. A. Tucker, W. C. Miller and B. H. Kean.—p. 761.
Acute Bacterial Endocarditis in Drug Addict: Case. E. T. Brading.—p. 765.

Antianemic Properties of Synthetic Folic Acid.—Spies and his associates studied the effect of numerous substances on reticulocytosis, leukocytic equilibrium and red cell and hemoglobin regeneration. The substances tested included niacin, thiamine, riboflavin, calcium pantothenate, pyridoxine, inositol, para-aminobenzoic acid, choline, pyridoxamine and pyridoxal. They were found to be of little efficacy in treating this type of anemia. Crude folic acid concentrates likewise produced little specific hematologic response. While fractioning reticulogen, Cline isolated several materials of unknown structure which, when given parenterally to patients with macrocytic anemia, produced reticulocytosis. The reticulocytosis which occurs following the administration of a synthetic substance, Lactobacillus casei factor, considered a part of the B complex, is of great interest. The L. casei factor dissolved in isotonic solution of sodium chloride and made alkaline with small amounts of sodium bicarbonate was given intravenously to 5 subjects with macrocytic anemia in relapse. Similar to the subjective sensation that comes on the patient with macrocytic anemia in relapse several days after liver extract, these patients felt a definite upsurge of well being three or four days after the first injection. Persons with macrocytic anemia in relapse have a significant hemopoietic response following the administration of synthetic folic acid. This response follows either parenteral injection or oral administration. In every instance the number of reticulocytes increased in the peripheral blood, and the red blood cell counts and hemoglobin content rose toward normal levels.

Salicylism.—Caravati and Whims present evidence which indicates that the prominent symptoms of salicylism are manifestations of the central effect of the drug; that tinnitus, dizziness, nausea, vomiting, fever, tachypnea and encephalopathies noted when large doses of salicylates were administered are caused by the effect of the drug on the higher centers. Intravenous salicylate therapy is unnecessary. Alkalis should not be given concomitantly with salicylates when it is desirable to reach a high plasma level but should be reserved for use when toxic symptoms develop. Plasma salicylate levels are promptly reduced by alkali therapy.

Erythrocyte Formation.—Sherman studied several patients with pernicious anemia during treatment in which there was a sustained reticulocytosis at a level much higher than can be attained by parenteral liver therapy. To achieve this the hormone addisin (from gastric juice) was used. The total red blood cell count does not materially increase until the reticulocytes disappear. If the reticulocytes were or became red blood cells, the increase should be immediate. Sherman assumes that the nuclear particles, normoblasts and reticulocytes which appear before the red blood cells are agents which stimulate the bone marrow to produce mature red blood cells. He believes that the normoblast, the nuclear particles and the reticulocytes contain in themselves some agent different from the hormone in the gastric juice which stimulates their appearance in the blood stream. This agent is at present unknown but is probably a hormone. When this factor is isolated from the reticulocytes, nuclear particles and normoblasts, it will be capable of causing an immediate regeneration of red blood cells.

Surgery, St. Louis

18:529-662 (Nov.) 1945. Partial Index

Experimental Evaluation of Sulfasuxidine and Sulfathalidine in Surgery of Colon. E. J. Poth, C. A. Ross and E. B. Fernandez.—p. 529.
Surgery of Colon in Forward Battle Area. J. M. Mason.—p. 534.
Operative Results of Surgery of Colon for Neoplastic Disease. R. Z. Pierpont, F. R. Peterson and J. W. Dulin.—p. 541.
Observations on Large Bowel Perforations. H. A. Weinberger.—p. 547.
Small Bowel Stricture Following Irradiation Therapy for Carcinoma of Fundus Uteri. H. C. Saltzstein.—p. 556.
Closure of Duodenal Fistula: New Technic. W. H. Snyder Jr., C. J. Berne, H. I. Ridell and E. L. Turner.—p. 562.
Method of Implanting the Pancreatic Duct into Jejunum in Whipple Operation for Carcinoma of Pancreas. R. L. Varco.—p. 569.
Subtotal and Palliative Gastrectomy for Chronic Gastric Ulcer. R. Colp and L. Druckerman.—p. 573.
*Hypochloremic State in Surgical Patients. C. Ireneus Jr.—p. 582.
New Technic for Parenteral Fluid and Drug Administration: I. Muscular Intubation. R. E. MacQuigg.—p. 592.
Studies on Mechanism of Citrate Intoxication in Massive Transfusions of Whole Blood. T. F. Thornton Jr., W. E. Adams and L. M. Carlton Jr.—p. 595.
Spicular Foreign Bodies in Esophagus: Report of 3 Unusual Cases. I. A. Bigger, E. B. Newborne and P. P. Vinson.—p. 603.
Surgical Problem of Cancer in Lymph Nodes. E. D. Sugarbaker.—p. 608.
Effect of Total Thyroidectomy on Experimental Production of Peptic Ulcer. P. P. T. Wu.—p. 619.
Healing of Arteries and Relationship to Secondary Hemorrhage. G. Murray and J. N. Janes.—p. 624.
Experimental Vascular Surgery. S. Smith.—p. 627.
Suture of Popliteal Artery: Report of 3 Cases. P. R. Imes.—p. 644.
Multiple Arteriovenous Aneurysms: Report of Case of Four Arteriovenous Aneurysms in 1 Individual. H. B. Shumacker Jr.—p. 646.
Skin Transposition in Incisional Defects: Modification of Z Plastic for Primary Skin Closure Following Extensive Breast Surgery. E. S. Sinaido.—p. 650.
Use of Cotton Sutures in Lower Abdominal Surgery. H. J. Flax.—p. 653.

Hypochloremic State in Surgical Patients.—Ireneus warns that severe hypochloremia may occur when postoperative patients are on a restricted salt intake. If salt solution is not given in these cases, serious results may ensue. The onset of clinical hypochloremia is insidious. The most important diagnostic lead is obtained by realizing that large amounts of electrolytes and chlorides have been lost without being compensated (for example, bile fistula, vomiting and high intestinal fistula). The clinical picture presents itself as one of shock (blood chlorides below 300 mg. per hundred cubic centimeters). The skin is cold and clammy, and the patient complains of extreme weakness. The pulse and blood pressure are usually unobtainable. The urinary output has acutely decreased to 100 cc. or less for twenty-four hours, with a corresponding rise in the nonprotein nitrogen. The temperature is subnormal. The author presents 4 cases of hypochloremic state occurring in surgical patients. They differ as to the mechanism of the chloride loss. The first case concerned a woman aged 23 with extensive granulating areas following a burn involving 35 per cent of the body surface. Her anemic and hypoproteinemic state was adequately corrected with whole blood and plasma. However, the author failed to appreciate that huge quantities of chlorides and other electrolytes could be lost through the extensive granulating areas until a picture of acute prostration and impending shock presented itself with a blood chloride reading of 327 mg. per hundred cubic centimeters. Ten thousand cc. of parenteral fluids containing 81 Gm. of salt was needed to elevate the blood chloride reading to 445 mg. per hundred cubic centimeters on the following day (normal 450 to 500 mg. per hundred cubic centimeters). The amount of salt given here is considerably more than that which would be given by the Coller "clinical rule" and perhaps was more than was actually needed; nevertheless, the clinical response was immediate and ideal. Hypochloremia in the second case was produced by excessive loss of chlorides through vomiting. The third patient developed hypochloremia because of cholorrhea through a persistent external biliary fistula created when the common bile duct was opened to drain a suppurative cholangitis. A fourth case of painless progressive icterus due to a carcinoma of the common bile duct is similar to the third case except for the absence of a complicating suppurative cholangitis. A high daily maintenance dose of salt was necessary also in this case to compensate for that lost by the bile fistula.

Tennessee State Medical Assn. Journal, Nashville

38:315-352 (Oct.) 1945

Some Modern Medical Problems. R. B. Wood.—p. 315.
Occupational Dermatitis. C. Shaw.—p. 319.
Psychiatric Points of Interest for General Practitioner. J. C. Hill.—p. 324.
Mental Symptoms at Male Climacteric. F. E. Jones.—p. 328.
Future of Medicine. J. H. Fitzgibbon.—p. 332.

38:353-394 (Nov.) 1945

Review of Cholecystectomies Done at a General Hospital from 16 November 1943 to 1 January 1945. B. H. Marshall.—p. 353.
Development and Early Diagnosis of Bronchiectasis. J. D. Hughes.—p. 355.
*Clinical Study of Tetanus: Analysis of 121 Cases of Tetanus. C. N. Gessler.—p. 363.
Subcostosternal Diaphragmatic Hernia: Report of Asymptomatic Case. P. E. Wylie.—p. 366.
Fifty Years of Neurosurgery. C. Pilcher.—p. 370.
Medical Education, Lay Education and Quackery. T. S. Wilson.—p. 374.

Tetanus.—Gessler analyzed the records of 121 cases of tetanus treated in four hospitals in the twelve years between 1933 and 1944. The average incubation period of those who recovered is 16.44 days, while it was 10.24 days in those who died. It has been long recognized that the incubation period is an important factor in determining prognosis, the short incubation period providing poor prognosis. However, in dealing with an individual case one cannot formulate the prognosis from the incubation period, for many cases that went on to recovery had a shorter incubation period than many cases in which recovery did not occur. The mortality rate was 53.7 per cent. More patients recovered among those who did not have prophylactic first aid than among those who did. More recovered also among those who did not receive prophylactic antitoxin. Thus prophylactic treatment is disappointing. Intravenous or intramuscular injection of tetanus antitoxin is preferable to other routes of injection. An adequate amount of antitoxin would appear to be about 25,000 units for the average case. Intrathecal injection of antitoxin is more hazardous than effective. Local injection of antitoxin about the site of infection seems without value. The older theory of the ability of tetanus toxin to travel up nerve sheaths to reach the central nervous system has given away to the theory of blood stream circulation of the toxin. Hence a liberal surplus of antitoxin injected into the circulation should neutralize the toxin being produced at the site of infection. The patient must have adequate sedation from the beginning of the disease. The use of sodium amytal and/or solution of tribromoethanol is satisfactory in most cases.

Texas State Journal of Medicine, Fort Worth

41:335-388 (Nov.) 1945

Socialized Medicine and Its Pay Roll Taxation. W. W. McAllister. —p. 340.
Use of Aluminum-Penicillin Mixtures in Maintenance of Blood Levels of Penicillin: II. Combination of Delayed Absorption by Use of Aluminum-Penicillin and Renal Blockage with Benzoic Acid. S. W. Bohls and E. B. M. Cook.—p. 342.
Treatment of the Minimal Lesion. C. M. Hendricks.—p. 344.
Recent Advances in Study of Pertussis. W. L. Bradford.—p. 348.
Brucellosis or Chronic Undulant Fever. J. W. Torbett Sr.—p. 350.
Pleural Mesothelioma, with Report of Case Presenting Some Unusual Aspects. W. W. Coulter Jr.—p. 353.
Ruptured Intervertebral Disk. R. L. Sewell.—p. 357.
Preventable Fetal Death. J. G. Sinclair.—p. 359.
Typhus Control, A Border Public Health Problem. F. A. Musacchio. —p. 361.
Planning a Routine Immunization Program. W. R. Ross.—p. 365.

Urologic & Cutaneous Review, West Palm Beach, Fla.

49:661-726 (Nov.) 1945

Thrombosis and Thrombophlebitis of Renal Veins. B. S. Abeshouse. —p. 661.
End Results in Treatment of Bladder Tumors. F. J. Parmenter.—p. 676.
Has Prostate Gland an Internal Secretion? R. Oppenheimer.—p. 680.
Neurologic Manifestations During Arsenotherapy for Syphilis. A. G. Franks, J. Fetterman and D. Romano.—p. 681.
Allergic Neurodermatitis. C. Bernstein.—p. 684.
Highlights of Conference in Tropical Dermatology for American Doctors. H. H. Perlman.—p. 687.
Nail and Its Diseases. H. Goodman.—p. 693.

Virginia Medical Monthly, Richmond

71:455-502 (Nov.) 1945

Medicolegal Aspects of Coronary Thrombosis. J. M. Hutcheson.—p. 455.
Plea for Operative Conservatism in Obstetrics. S. A. Cosgrove.—p. 459.
Hearing Aids, the Otologist's Problem. J. Krimsky.—p. 465.
Observations in Clinical Uses of Prostigmine. C. P. Jones.—p. 469.
*Observations on Loeffler's Syndrome: 4 Cases. H. W. Blanton.—p. 473.
Report of 5 Cases of Meningitis Treated Empirically with Sulfanilamide Under Rural and Low Economic Conditions. C. H. Dawson and H. D. Crow.—p. 480.
Splenomegaly with Hemolytic Jaundice and Bilateral Leg Ulcers. A. Gentile.—p. 484.

Loeffler's Syndrome.—Blanton describes the histories of 4 patients presenting symptoms of Loeffler's syndrome. All gave either a personal or a family history of asthma or hay fever. On the assumption that he was dealing with an allergic reaction of the lungs in the patients with Loeffler's syndrome and that in all probability it was due to localized edema simulating angioneurotic edema, which in turn is believed to be due to hyperpermeability of the capillaries, Blanton used a sympatheticomimetic amine. He injected 0.5 cc. of epinephrine subcutaneously. Roentgenoscopy revealed that this led to the disappearance of the shadows previously seen in the lungs, but later they returned. The author regards this as evidence that his assumption was correct. He observed this effect of epinephrine in 3 of his cases.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

53:379-412 (Nov.) 1945

Use of Drainage in Operations on Spine. L. S. Lucas and J. H. Gill. —p. 379.
Pernicious Vomiting of Pregnancy Due to Sensitivity to Semen. D. W. James.—p. 380.
Physical Law of Repair and Healing of Wounds: Original Hypothesis. W. C. Speidel.—p. 383.
Amputative Hemorrhoidectomy: Important Surgical Landmarks of Anorectum. C. Eaton.—p. 386.
At What pH Does Pathogenic Monilia Albicans Grow Best? K. J. Karnaky.—p. 390.
Gastric Adenomas: Pathologic Study. J. H. Rieniets and A. C. Broders. —p. 392.

Wisconsin Medical Journal, Madison

44:1065-1116 (Nov.) 1945

Method of Bowel Anastomosis Following the Rankin-Mikulicz or Lahey Type of Obstructive Resection. E. S. Sinaiko.—p. 1065.
Backache in Industrial Injuries. M. L. Jones.—p. 1069.
Control of Air Borne Infection, Particularly the Common Cold. S. Quisling.—p. 1070.
Etiology and Treatment for Low Back and Related Complaints. R. P. Montgomery.—p. 1076.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

20:97-144 (Sept.) 1945

Growth and Health of Belgian Children During and After the German Occupation (1940-1944). R. W. B. Ellis.—p. 97.
Severe and Prolonged Underfeeding in African Children (The Kwashiorkor Syndrome of Malignant Malnutrition). H. C. Trowell.—p. 110.
Penicillin in Infections of Infancy. E. C. R. Couper.—p. 117.
Pulse Rate and Blood Pressure in Infancy and Early Childhood. G. M. Allen-Williams.—p. 125.
*Renal Venous Thrombosis and Infarction in the Newborn. J. E. Morison.—p. 129.
*Bilateral Adrenal Hypertrophy in Infancy. M. O. Skelton.—p. 135.
Splenomegaly and Hepatomegaly in Adolescent Simulating Banti's Syndrome. A. F. MacCabe and W. G. Taaffe.—p. 138.
Spontaneous Pneumothorax in Infancy. I. Higgins.—p. 141.

Renal Venous Thrombosis and Infarction in the Newborn.—According to Morison, hemorrhagic infarction of the kidney is usually considered to be secondary to venous thrombosis. The author describes 18 cases. All but 1 of these occurred in the neonatal period. In 5 newborn infants thrombi formed in the intrarenal veins without producing infarction of the kidney. In another 5 cases thrombi resulted in hemorrhage between the tubules of some renal papillae, in 2 others there was extensive disruption, especially of the medulla, by effused blood, and 2 cases showed both red and pale venous infarcts. These cases are compared with 4 in which there was hemorrhagic infarction without thrombi in the veins, and with 4 in which similar but less severe lesions resulted from pyelonephritis Thrombi were organized or covered by endothelium in 11 cases and had formed first in the small intrarenal branches. Dehydration, continued sepsis and renal venous stasis, but not renal inflammation, appeared to be important in their etiology. Emboli in the small pulmonary arteries and sometimes small areas of infarction occurred in the lungs of 9 of the 14 cases of idiopathic renal venous thrombosis.

Bilateral Adrenal Hypertrophy in Infancy.—A boy aged 6 weeks died of a rapidly fatal disease characterized by severe vomiting with signs suggestive of cardiovascular disturbance—an attack of extreme pallor which ushered in the disease, and respiratory involvement, collapse of the lungs and severe cyanosis. At necropsy there were two abnormalities, huge adrenals and a relatively small thymus. There appear to be two classes of children with bilateral adrenal hypertrophy: the first class exhibits features of pseudohermaphroditism, the children often dying with severe, even projectile, vomiting; the second class presents a history similar to that of the child described by Skelton in this paper. They are normal children, more commonly male than female, who in early infancy, usually between 3 and 6 weeks of age, are taken ill with severe vomiting and ultimately die. The underlying nature of the disease is unknown.

British Heart Journal, London

7:107-160 (July) 1945

*Paroxysmal Tachycardia in Infancy and Childhood. C. Neubauer. —p. 107.
Traumatic Rupture of Interventricular Septum. T. East.—p. 116.
Multiple Chest Lead Cardiograms and Their Clinical Value. E. H. Roche.—p. 119.
*Heart Block in Diabetic with Only Mild Arteriosclerosis. F. Dreyfuss. —p. 128.
Arterial Thickening in Old Age. T. H. Howell.—p. 135.
Malignant Hypertension Cured by Unilateral Nephrectomy. C. B. Perry. —p. 139.
Cardiac Output in Case of Pericardial Effusion, with Note on Pericardial Pain. C. M. Fletcher.—p. 143.
Tuberculous Pericarditis with Effusion. P. Ellman.—p. 147.

Tachycardia in Infancy and Childhood.—Neubauer reports 11 cases of paroxysmal tachycardia observed from 1941 to 1945. Three of the patients were infants of less than 1 year of age; the other 8 were between 3 and 6 years of age. The onset of paroxysmal tachycardia is sudden. The attack lasts for minutes, hours or days. The child appears acutely ill. It is restless at the outset but apathetic once the attack is developed and is pale and often cyanosed. There is respiratory distress, with rapid and shallow respirations. During the attack, most commonly the heart rate is 160 to 200 a minute, but rates of 270 and 300 have been observed. Between and following

attacks premature beats are often found. Signs of congestive heart failure may develop. The heart condition was associated with various infections, diphtheria being most frequent. Distinctive pathologic changes either in the myocardium or in the conductive tissue have not been found in 3 cases in which necropsy was performed. Digitalis given promptly may be effective and save the child's life. Digitalis was not successful in the diphtheria cases of the series. In a case of meningitis, flutter was changed into fibrillation, and this was controlled by digitalis. Quinidine and magnesium sulfate intravenously were also not always satisfactory. Pressure on the carotid sinus or the eyeball, which may stop an attack in an adult, was not effective in infants. This report indicates a rather poor prognosis for paroxysmal tachycardia in infancy and childhood. When a mild infection has been the causative factor, the response to treatment is probably better.

Heart Block in a Diabetic Patient.—Dreyfuss reports that a man aged 58, with complete auriculoventricular block, presented at necropsy only mild arteriosclerotic changes, especially of the coronary circulation. Many series of Adams-Stokes attacks had occurred, accompanied by Cheyne-Stokes respiration. These seizures were caused by ventricular standstill and finally also by ventricular fibrillation. These mechanisms were demonstrated by electrocardiograms; in 1 instance even auricular stoppage was graphically demonstrated. As the anatomic findings do not explain the profound disturbances of cardiac action, and as these attacks usually occurred when diabetic balance was seriously upset, an attempt is made to explain the changes in cardiac behavior by metabolic fluctuations. The appearance of the attacks was controlled largely by the control of diabetes. Only insulin and dextrose respectively were effective in controlling the seizures. Atropine, ephedrine, erythrol tetranitrate and potassium iodide were of no avail. Aminophylline sometimes seemed to shorten attacks when given intravenously and definitely influenced only Cheyne-Stokes respiration. Caffeine occasionally seemed to shorten an attack. Oxygen did not abolish the attacks but had, at least for a few weeks, an interesting effect: during its administration no epileptic convulsions appeared and consciousness was usually not lost completely; the pulse did not entirely disappear, but the periodicity of respiration and cardiac disturbance remained uninfluenced. When oxygen administration ceased, a violent seizure followed almost immediately. The case represents a rare cardiocerebral complication in a diabetic patient the severity of which is illustrated by the violence of the seizures and by the fatal outcome. It belongs in the category of heart disease which might be designated as "nutritional heart disease."

British Medical Journal, London

2:521-556 (Oct. 20) 1945

Indications for Surgery in Penetrating Wounds of Chest: Importance of Pulmonary Injury. G. Qvist.—p. 521.
*Outbreak of Epidemic Diarrhea and Vomiting in General Hospital and Surrounding District. G. Brown, G. J. Crawford and Lois Stent. —p. 524.
Tick Borne Relapsing Fever in Cyprus. R. C. Wood and K. C. Dixon. —p. 526.
Prophylaxis of Paralytic Ileus by Administration of Morphine. J. T. Chesterman and W. J. Sheehan.—p. 528.
Acid Fast Organisms in Gastric Resting Juice. J. Yates.—p. 530.
Massive Surgical Emphysema, Pneumothorax and Pneumoperitoneum. R. Jones.—p. 530.
Note on Fat Embolism. H. J. Nightingale.—p. 531.
Rehabilitation of Patients Suffering from Skin Disease. R. M. Bolam. —p. 539.

2:557-592 (Oct. 27) 1945

Incidence and Causes of Blindness in British Commonwealth. A. Sorsby. —p. 557.
Observations on Edema Occurring During Course of Macrocytic Anemia. E. G. Holmes.—p. 561.
Sulfhemoglobinemia Due to Aniline Derivatives. S. Lazarus.—p. 565.
Child with Frequent Colds. D. H. Irwin and E. Frankel.—p. 566.
Mass Miniature Radiography of Factory Groups in Middlesex. W. P. Dick.—p. 568.
Case of Left Sided Appendicitis. J. W. L. Haddon.—p. 569.

Epidemic Diarrhea and Vomiting.—Brown and his associates report an epidemic of diarrhea in a thousand bed hospital with a nursing staff of 365. Attention was first drawn to the outbreak when 5 babies ranging in age from 3 to 6 days developed diarrhea. Two babies with diarrhea had been admitted previously to a surgical ward with undiagnosed acute abdominal conditions, but any contact with the babies in ward A, which was far distant from the surgical ward, could not be discovered. The cleaner of ward A had had some diarrhea and she would have been in the nursery as part of her normal duties, although without direct contact with the babies. It was soon apparent that this outbreak in no way resembled in severity a previous epidemic of neonatal diarrhea with a high mortality rate which had occurred in the maternity wards at the beginning of the year. Moreover, on that occasion adults had not been involved. Of the total of 111 cases in the present series 20 adults were admitted to the hospital with a history of symptoms, and the remaining 91 cases (including 27 members of the nursing staff and 22 babies) acquired the condition in the hospital. Daily visiting to the patients provided a constant contact with the outside community, and in several instances histories were available of other members of the family suffering from diarrhea and vomiting at about the same time. The possibility of infection brought in from the outside cannot be entirely ruled out, but the fact that 65 of the cases occurred in two neighboring wards points to a degree of local spread within the hospital. Careful inquiry failed to throw suspicion on any foodstuff, milk or water supply as a possible source of infection. Epidemiologic data and previous published work suggest that the infection is due to a virus. The author believes that the outbreak has been widespread over the country.

2:593-634 (Nov. 3) 1945

Etiology of Gallstones. J. Walton.—p. 593.
*"Acroparesthesia" and So-Called "Neuritis" of Hands and Arms in Women: Their Probable Relation to Brachial Plexus Pressure by Normal First Ribs. F. M. R. Walshe.—p. 596.
Missed Cases of Infective Hepatitis: Evidence of Liver Damage Without Symptoms Among a Community at Risk. M. R. Pollock.—p. 598.
Amputations, Reamputations and Penicillin. E. N. Callum.—p. 599.
Descent of Testis in Relation to Temperature. A. W. Badenoch.—p. 601.
"Fastness" of Staphylococci, Hemolytic Streptococci and Pneumococci to Penicillin. E. W. Todd, G. S. Turner and L. G. W. Drew.—p. 603.

Acroparesthesia of Hands and Arms in Women.—Walshe observed a number of women, mostly middle aged or elderly, normally unaccustomed to great manual effort, who, under wartime demands, were obliged to take on much heavy work. They developed numbness, tingling and "uselessness" of the hands and fingers, often associated with pain. The response to the treatments commonly adopted was uniformly disappointing, for the patient was expected to follow her normal routine of life. A few of the sufferers discovered that a rest or holiday afforded remarkable relief, suggesting a mechanical origin of the syndrome. There is almost always tenderness of the extensor muscles in the forearm and sometimes of the thenar and adductor muscles of the thumb without muscular wasting. Objective sensory loss is exceptional, although when pain and paresthesias are maximal there may be some blunting of cutaneous sensibility over the digits. Cyanosis or pallor of the fingers is occasional, but Raynaud's syndrome is not an essential part of the picture. The author is convinced that the condition is a manifestation of a rib pressure syndrome. The rib in question is the normal first rib, and traction and compression are exerted on the lower components of the brachial plexus and sometimes also the subclavian artery, when from muscular atonia the muscles supporting the shoulder girdles allow these to droop and remain at an abnormally low level. Acroparesthesia is a mechanically produced syndrome. It is not to be regarded as dependent on abnormalities of metabolism—either toxemic or due to dietary deficiency—or as related to pregnancy. The essential treatment is rest for the limbs.

Edinburgh Medical Journal

52:337-384 (Oct.) 1945

Future of Postgraduate Education in Edinburgh. L. S. P. Davidson. —p. 337.
Nucleoproteins in Growth and Development. J. N. Davidson.—p. 344.
Some Unusual Forms of Dermatitis. R. Aitken.—p. 357.
Problem of Oral Infection and Its Relation to Systemic Diseases. L. Lakner.—p. 366.
Wound Infection: The "Tissue Swab." H. L. de Waal.—p. 373.

Lancet, London

2:485-516 (Oct. 20) 1945

*Thiouracil in Goiter. H. Cookson.—p. 485.
Wounds in Region of Hip Joint. J. S. Ellis.—p. 490.
Military Psychiatric Casualties: Experience with 12,000 Cases. H. Palmer.—p. 492.
Urinary Excretion of Coproporphyrin in Nonalcoholic Pellagra. C. Rimington and Z. A. Leitner.—p. 494.
Mustard Gas Burns. I. J. Thomas and J. Gough.—p. 496.

Thiouracil in Goiter.—In 22 of 33 patients the diagnosis of toxic goiter seemed probable but not certain, and in 11 it was doubtful. The results obtained indicate that thiouracil can neutralize hypersecretion of thyroxine in cases in which the clinical diagnosis of toxic goiter is beyond doubt. Failure occurred only in 2 patients in late pregnancy and in 2 elderly women with fibrillation and heart failure, 1 of them moribund when treatment was begun. The chronic mild toxemia of a large degenerated thyroid gland probably cannot be controlled, as suggested by 2 patients in group 2 who improved after subsequent thyroidectomy. Thiouracil may be employed as a diagnostic agent in deciding to what extent symptoms are due to goiter or to other factors, such as neurosis, although anxiety neurosis may be combined with toxic goiter. If symptoms are nongoitrous in origin, thiouracil has no effect. Hypothyroidism is readily produced in those formerly suffering from hyperthyroidism, but it is extremely difficult or impossible to produce with similar dosage in those with mildly overactive or normally active goiters. Fatality in connection with thiouracil occurs with extreme depression of the leukopoietic system; the case mortality from this is under 1 per cent in the 600 to 700 cases so far reported. The other and milder toxic effects are distressing but transient if the drug is stopped or the dose reduced. The total incidence of toxic reactions in the cases under review by Cookson was 23 per cent.

2:517-548 (Oct. 27) 1945

Psychology in Medicine. M. Culpin.—p. 517.
Traumatic Hemothorax and Hemopneumothorax: Diagnosis and Treatment. T. Simpson.—p. 521.
*Direct Irradiation of Cancer of Stomach and Other Viscera Exposed Temporarily at Operation. G. C. Fairchild and A. Shorter.—p. 522.
Influence of Temperature on Sedimentation Rate: Its Clinical Significance. R. J. Weingarten.—p. 526.
Clinical Trials of Pethidine. A. J. Glazebrook and A. W. Branwood. —p. 528.

Irradiation of Cancer of Viscera Exposed at Operation.—Fairchild and Shorter propose combined surgery and direct irradiation for inoperable cancers of the stomach and other viscera. A more accurate and effective dose of radiation at high intensity can be given directly to the tumor and field of local spread, without irradiating a large amount of normal tissue, including vital organs and skin which is unavoidable when irradiating from the skin surface. The authors discuss the surgical approaches for lower esophageal and gastric cancers, also for midabdominal and lower abdominal visceral cancers such as carcinoma of the pancreas or of the descending colon and finally the thoracic approach for upper and midthoracic esophageal cancers. The operative procedures include exploration of the tumor and field of local spread by laparotomy or thoracotomy, also exploration of the whole abdomen or thorax for widespread metastases, which rule out irradiation as a curative measure. In consultation between surgeon, radiotherapist and pathologist it is decided whether the lesion is (1) operable, (2) inoperable but suitable for curative direct irradiation, (3) suitable for palliative direct irradiation only, (4) suitable for palliative operation only or (5) unsuitable for any treatment. When direct irradiation is contemplated, extension of the incision may be necessary. When indicated, operations to relieve obstruction, e. g. gastrojejunostomy and gastrostomy, are done before the irradiation. The tumor is isolated in the open wound and normal viscera are displaced by retraction and packing to minimize the irradiation of normal tissues. Sterilized oiled silk or transparent rubber sheeting protects the field against infection during irradiation. Lead screening is applied to the skin edges when necessary. After the irradiation has been given, the wound is closed. Originally the authors used only one tube to administer a single dose of irradiation directly to the lesion through a parietal opening at the time of operation. This was followed in days by a further dose given through the skin. In later cases the method was modified to give an adequate total dose at one exposure. In the second method two tubes were used. A figure of 1,300 roentgens was decided on as a minimal dose throughout the tumor, entailing a surface dose of 1,350 roentgens from each of the tubes simultaneously. During the past eighteen months 15 cases of visceral cancer have been treated. In 6 of these treatment was purely palliative, because the disease had spread beyond the possible field of irradiation. Little beneficial effect was achieved in this group. From results in the other 9, comprising cancers of the stomach, abdominal esophagus, pancreas and colon, the authors feel that their method will be an advance in the treatment of inoperable cancer of the viscera.

2:549-584 (Nov. 3) 1945

Sulfonamides in Bacillary Dysentery: Further Observations on Their Effects. J. G. Scadding.—p. 549.
*Effects of Artificial Dehydration in Rheumatism. W. S. C. Copeman and L. G. C. Pugh.—p. 553.
Spasmodic Torticollis: Results of Psychotherapy in 21 Cases. Mary T. Paterson.—p. 556.
Cellophane Dressing for Second Degree Burns. H. Bloom.—p. 559.
Anaerobic Streptococcic Myositis. Nancy J. Hayward and R. Pilcher. —p. 560.
Short Confusional State Following Thiouracil Treatment. I. Atkin. —p. 562.
Traumatic Rupture of Second Part of Duodenum. C. V. Salisbury. —p. 562.

Artificial Dehydration in Rheumatism.—Copeman and Pugh believe that edema and the development of tension as swelling occurs is an important factor in the production of pain and local tenderness in fibrositis. They attempted to reverse this process with a reduction of the fluid content of the affected tissues by inducing dehydration. The distinction between acute and subacute rheumatism and fibrositis is not so precise as is generally held, there being many points of resemblance between them. In view of these facts some cases of acute and of subacute articular rheumatism were also submitted to dehydration. In the first 15 patients fluid intake was restricted for four days to about 8 ounces (225 cc.) daily. Owing to the discomfort caused by so long a period of restriction, it was decided to shorten the treatment to twenty-four hours. During this period neither food nor drink was taken, and fluid output was increased by the administration of sodium sulfate ½ ounce at hourly intervals for 6 doses. The quantity of feces passed was 0.5 to 4.0 liters (average 1.6 liters) and of urine 40 to 560 cc. in the twenty-four hours. As the results obtained by the second method appeared to be less satisfactory, the period of fluid restriction was raised to thirty-six hours, which remained the standard practice for the last 40 cases. Loss of weight was found to vary between 1 and 3.5 Kg. This preliminary dehydration was followed by an intravenous injection of 50 cc. of 30 per cent sodium chloride into one of the veins of the arm. At first the injection was made slowly, but this was followed by intense pain and in some cases thrombophlebitis extending up the arm for several inches. It was later found that, if the injection was made rapidly and leakage round the vein avoided, pain did not arise. Localized thrombosis still developed in about half of the cases but passed off in a few days. Immediately after the injection the patient was allowed to drink 4 ounces of tea to mitigate thirst. Apart from this no fluid was permitted for four hours, after which time further restriction was not imposed, and the patient was encouraged to be up and about. It was believed that if relief of pain should result it would be only temporary. Some patients were apparently cured. In evaluating the effects, a result which fell short of 75 per cent improvement was regarded as not successful. Of 22 patients with fibrositis 13 were graded as successful and 9 as failures. Of 19 with chronic rheumatism 13 were graded as successful and 6 as failures. Pain also disappeared, although usually only temporarily, in more than half of 28 patients with sciatica and evidence of disk prolapse. In this last group relief of pain is probably the effect of shrinkage of nervous tissue and lowering of the cerebrospinal fluid pressure due to the injection of hypertonic solution of sodium chloride.

Presse Médicale, Paris

53:513-532 (Sept. 29) 1945. **Partial Index**

*Results of Campaign Against Goiter in Switzerland. C. Wegelin. —p. 514.
Temporary Pulmonary Infiltrations with Blood Eosinophilia (Loeffler's Syndrome). W. Loeffler.—p. 516.
Functional Disturbances of Silicosis. L. Michaud.—p. 517.
Vagohumoral Regulation of Heart. A. de Muralt.—p. 519.
Diseases of Pulmonary Artery and Surgical Interventions. C. Henschen. —p. 520.
Circulatory Disturbances of Retina in Syndromes of Carotid Sinus. E.-B. Streiff.—p. 522.
Recent Advances in Alkaloids of Ergot. O. Stoll.—p. 523.
*Disease of Swineherds Caused by Leptospira Pomona. O. Gsell.—p. 525.

Goiter in Switzerland.—According to Wegelin, salt with a physiologic dose of iodine was first introduced for general consumption in Switzerland in the years 1922 to 1924. The salt employed contained 5 mg. of potassium iodide per kilogram of salt. At first only a small number of the twenty-two Swiss cantons made the use of this salt obligatory, but gradually other cantons followed. By 1943 there were eight cantons using the iodized salt to the extent of 100 per cent, in eight others it was used by between 50 to 90 per cent and in only six was it used by less than 50 per cent. Since 1936 in the canton of Bern iodized salt has been sold generally except when the purchaser has demanded ordinary salt because of hypersensitivity to iodine. The condition of the thyroid gland at birth is the best index of the efficacy of iodine prophylaxis. Clinicians report a great reduction in congenital goiter. In some cantons it has practically disappeared. Before the period of prophylaxis 1 out of 7 newborn infants in Bern had a large goiter, whereas now the proportion is only 1 in 500. Wespi reports similar results from the maternity hospital in Zurich. He gives pregnant women a salt which contains 20 mg. of potassium iodide per kilogram of salt. He regards 5 mg. as insufficient for pregnant women. At the Institute for Pathologic Anatomy of Bern the incidence of goiters weighing more than 6 Gm. in the newborn decreased from 70 per cent between 1909 and 1914 to 7 per cent between 1940 and 1944. The extremely large goiters, those weighing over 20 Gm., have become extremely rare, only one having been observed since 1935. In Lausanne the percentage of normal glands in persons between 5 and 25 years has increased from 13 per cent before the period of prophylaxis to 60 per cent during the last five years. Partial failure of the prophylaxis may be due to the fact that the iodized salt does not always contain the prescribed content of 5 mg. of potassium iodide per kilogram of salt. The iodized salt prophylaxis reduces the incidence of the severe types of goiter and their fatal sequels, endemic cretinism and most malignant goiters.

Disease of Swineherds a Leptospirosis.—The disease of swineherds is characterized by a diphasic febrile curve. It begins suddenly with a febrile phase of four to six days followed by an afebrile interval of one or two days, which in turn is followed by a renewed increase in temperature of short duration. During this second febrile phase the disease presents the aspects of a serous meningitis. The disease is observed in young people who come in contact with hogs or the excrements of these animals. It prevails in Savoy, the French speaking and the Bern regions of Switzerland, northern Italy and in certain parts of eastern Switzerland. A virus has been assumed as the causal factor, but numerous cases have shown the clinical aspects of a benign leptospirosis. Serologic studies which Gsell carried out during 1944 revealed that swineherds' disease is due to Leptospira pomona. His 39 patients with pomona leptospirosis all had close contact with hogs. Most of them worked on farms where from 60 to 300 hogs were kept. Some were employees of slaughterhouses or masons who had repaired hogsties, and 1 was a truck driver delivering hog feed. In 32 patients who had had the disease recently, the author obtained agglutination titers with Leptospira pomona of over 1:1,000, and in 7 who had had the disease earlier (1 patient eleven years ago) the titer was still around 1:100. The hogs of infected herds do not necessarily present symptoms, and neither did a hog that was inoculated with L. pomona. However, the blood of this animal gave a positive culture and a high agglutination titer. Serologic tests on 173 hogs from different parts of Switzerland revealed in 65 per cent an agglutination titer of 1:100 and up, and in 30 per cent it was over 1:1,000. In 2 apparently healthy hogs the urine contained leptospiras. The author concludes that hogs are the carriers of Leptospira pomona. He says that Clayton of Australia demonstrated L. pomona in young persons with a mild febrile infection who were working in dairies, but Clayton did not suspect a connection with hogs.

53:545-556 (Oct. 13) 1945

Antidiphtheritic Vaccination and Protection Against Diphtheria: New Proof of Its Effectiveness. G. Ramon.—p. 545.
Late Paralysis of Dilator Muscles of Glottis After Thyroidectomy: Pathogenic Study. P. Wertheimer and H. Martin.—p. 546.
*Importance and Value of Electroencephalography in Craniocerebral Injuries. Puech, Fischgold, Verdeaux and Brun.—p. 547.
Graphic Evaluation of Excess of Anticoagulants in Plasma. I. Bertrand and D. Quivy.—p. 548.

Electroencephalography in Craniocerebral Injuries.—According to Puech and his co-workers a patient with a recent injury and with normal electroencephalograms or with a slight deviation from normal will, as a rule, recover rapidly and without surgical intervention provided the alpha rhythm is preserved. A case with an old injury and with abnormal electroencephalographic tracings after coma has subsided presents a serious problem. Deviation from normal may be caused by hematoma, cerebral edema or hypotension. A recent fracture of the cranium, concussion and laceration of the brain may cause slight deviation from normal. The electroencephalographic studies should be made as soon as possible after injury and should be repeated as often as possible, recording simultaneously waves from various cerebral areas. Thus the tracings can aid in ascertaining an improvement in the primary lesion and clarify the situation without resort to operation. In children an injury of the same degree will cause more deviation from normal than in adults. Considerable deviations at the level of the frontal lobes should not be regarded too seriously. Preventive treatment for epilepsy with sedatives is indicated in cases in which definite deviation from normal continues for a prolonged period after injury. Electroencephalograms and the clinical course were followed for one to ten years after craniocerebral trauma in 15 patients. The tracings showed abnormalities in 9 but were normal in the remaining 6. Electroencephalograms can reveal the existence of severe trauma in the past and of a persisting cerebral lesion, but the occasional absence of electroencephalographic abnormality does not exclude the existence of a cerebral lesion.

Semaine des Hôpitaux de Paris

21:1125-1158 (Oct. 28) 1945

Prognosis of Cancer of Breast Operated On; Usefulness of Postoperative Roentgen Treatment. J. Quénu and M. Ronsin.—p. 1125.
Postoperative Roentgen Treatment for Cancer of Breast. G. Richard. —p. 1128.
Partial Excision of Breast for Cancer. J. Quénu and M. Ronsin. —p. 1131.
Extemporaneous Microscopic Examination in Tumors of Breast. M. Perrot.—p. 1133.
*Surgical Treatment for Recurrences of Cancer of Breast. J. Quénu. —p. 1137.
Palliative Surgical Treatment for Ulcerative Cancer of Breast. J. Quénu and M. Ronsin.—p. 1141.
*Reclus's Disease and Cancer of Breast. F. Fénelon.—p. 1143.
Cancer of Breast and Pregnancy. J. Perrotin.—p. 1147.

Surgical Treatment for Recurrence of Breast Cancer.—Quénu reports 27 cases of local recurrence of cancer of the breast. In 8 of these the primary intervention was limited. In 19 cases primary radical amputation included clearing of the axilla. Nine of these cases presented cutaneous or subcutaneous recurrences; in 1 case there was a recurrence in the axillary lymph nodes, 7 presented a recurrence in the subclavicular lymph nodes and in 2 cases there were "crossed" axillary recurrences. Radical amputation including dissection of the axilla and of both pectoral muscles is indicated in cases in which limited operation was originally performed. Postoperative roentgen irradiation is recommended for local recurrence in which involvement of the axillary lymph nodes was demonstrated on microscopic examination. Surgical treatment is contraindicated in cases of local recurrence with extensive involvement of the skin or of the

thoracic wall, particularly in patients with primary radical operation. Definite recovery occurred in only 1 of the author's patients who survived the second operation for ten years. All the others died and the treatment did not considerably delay death or alleviate symptoms during the period of survival. Seven patients were operated on successively for cancer of the breast on both sides. In 5 of these in whom the interval between the two operations was less than four years the longest time of survival was two and a half years. In the 3 other cases, in which the interval ranged from five to eight years, the time of survival varied from six to fifteen years. Radical amputation, including dissection of the axilla, is indicated in secondary cancer, which in the absence of metastases should be treated like a primary local cancer. This applies regardless of the length of the interval between the operations for the primary and the secondary cancer. The prognosis of the second intervention is better in cases with a longer interval.

Reclus's Disease and Cancer of Breast.—Fénelon studied the records of 70 cases of cystic mastitis. Surgical intervention was performed in 52 cases during the period 1925 to 1944. Microscopic examination of 38 of these revealed cancer in 2 patients. In 14 physical reexamination in the absence of microscopic studies or written answers to a questionnaire revealed cancerous growth in 1 patient. Surgical intervention was not performed in 18 cases examined during the period 1925 to 1937. Reexamination or questionnaire revealed malignant growth in 4 cases (5.6 per cent). This percentage exceeds but little the 2 to 4 per cent ascertained by the author for cancer of the normal breast. Malignant growth in Reclus's disease occurs in women of an age in which estrone secretion is reduced. On the other hand, frequent and prolonged administration of large doses of estrone have not caused a pronounced increase in the incidence of cancer of the breast. These facts suggest that the effect of estrone on women may be different from that on mice. One hesitates to affirm that a tumor is benign. Surgical treatment, as a rule, is not indicated in definite cases of Reclus's disease, since the disease is not malignant nor does it predispose to cancer. Clinical examination three times a year or at monthly intervals is recommended in doubtful cases. Surgical intervention may be performed on older patients because of the greater incidence of cancer. Depending on the individual case, surgical treatment consists in total removal of the mammary gland or of mammectomy with the removal of the cutaneous-adipose tissue of the gland. Radical amputation with dissection of the axilla is indicated only in cases in which the diagnosis of cancer is supported by the clinical signs or by the microscopic examination of the removed tissues.

Annales Paediatrici, Basel

164:225-280 (May) 1945

*Prognosis and Late Complications of Diabetes Mellitus During Childhood. H. Rosenbusch.—p. 225.
Etiology and Pathogenesis of Arachnodactylia. K. Greiner and T. Varga.—p. 259.
Great Toe Phenomena in Healthy Children. J. Deutsch.—p. 273.

164:281-344 (June) 1945

*Prognosis and Late Complications of Diabetes Mellitus During Childhood. H. Rosenbusch.—p. 281.
*Panhemocytophthisis During Childhood. F. Oldenberg.—p. 313.
Normal Values of Pancreatic Ferments in Duodenal Juice of Children. A. Dreyfus.—p. 337.

165:1-56 (July) 1945. **Partial Index**

Brown Pulmonary Induration in Children with Secondary Anemia. S. Scheidegger and A. Dreyfus.—p. 2.
*Prognosis and Late Complications of Diabetes Mellitus During Childhood. H. Rosenbusch.—p. 12.
*Panhemocytophthisis During Childhood. F. Oldenberg.—p. 33.

165:57-112 (Aug.) 1945. **Partial Index**

*Panhemocytophthisis During Childhood. F. Oldenberg.—p. 57.
Meningitis Basilaris with Aspects of Chronic Hydrocephalus. I. Gaál and L. Pálcy.—p. 104.

Prognosis and Complications of Diabetes During Childhood.—Rosenbusch finds that the long range prognosis of diabetes in childhood, in spite of the great progress in dietetic and insulin therapy, remains less favorable than had been expected. Late complications appear after fifteen or twenty years. The mental status of the diabetic child is usually normal. Rosenbusch was unable to demonstrate intelligence above average. Some diabetic children show psychopathic behavior. The occurrence of a number of organic nervous disturbances with diabetes suggests the possibility of multiple degenerative changes. Height below the average was frequently observed. Tuberculosis and diabetic nephropathy are the most important late complications. The nephropathy of young diabetic patients frequently takes the form of intercapillary glomerular sclerosis as described by Kimmelstiel and Wilson. The author describes cases of this type. Diabetic polyneuritis likewise seems to occur in the young diabetic patient. Eye complications are found fairly frequently in the growing diabetic child during systematic investigations. Examinations with Gullstrand's slit lamp revealed the existence of some opacity after a few years of diabetes in a large number of cases, which may be an early sign of an inadequately balanced metabolism. An early and carefully increasing insulinization seems to be the prerequisite for the prevention of serious disturbances in metabolism and endocrine balance.

Panhemocytophthisis During Childhood. — Oldenberg reports 3 cases of panhemocytophthisis. In 1 case the condition was produced by a micromyeloblastic leukemia, in the second case the cause could not be ascertained, and in the third agranulocytopenia developed following repeated medication with a compound containing phenylethyl hydantoin and phenobarbital. Panhemocytophthisis is a clinical entity with a multiple etiology. A constitutional weakness of the blood forming organs is assumed to exist in the majority of the cases. Association with infectious allergic disorders of the reticuloendothelial system is so pronounced that it seems justified to classify the condition as a disorder of the reticuloendothelial system. Etiologic classification includes intoxication with chemical products, allergic reactions to medicaments, irradiation, infections, blood disorders, particularly leukemias, metastases of malignant tumors, marble bone disease and deficiency diseases. There are cases in which the condition is probably of constitutional origin. The author directs particular attention to the relations between panhemocytophthisis and acute leukemia. The two diseases occur in the same age groups and develop chiefly in males. Panhemocytophthisis may be considered as a preblastomatosis, which under certain conditions may degenerate into a truly malignant leukemic proliferation of the bone marrow.

Prensa Médica Argentina, Buenos Aires

32:1987-2032 (Oct. 12) 1945. **Partial Index**

*Intrabronchial Hyperpressure: Etiology, Diagnosis and Complications: Presence in Bronchopulmonary Cancer. E. S. Mazzei.—p. 1987.

Intrabronchial Hyperpressure.—According to Mazzei a respiratory syndrome due to intra-alveolar hypertension during expiration is frequent in bronchial tumors, bronchial or bronchopulmonary cancer and peribronchial adenopathies of cancer. It may also be caused by foreign bodies in the bronchi, pulmonary tuberculosis and peribronchial tuberculous lymphadenitis, as well as in the course of spontaneous or artificial pneumothorax. Intra-alveolar hypertension suggests obstruction within or about a bronchus, which acts as an intrabronchial valve since it permits entrance of air into the lung with inspiration but prevents total expulsion of air during expiration. As alveolar tension increases, distention of the pulmonary alveoli occurs. Alveolar distention results in aggravation of the respiratory difficulty. It develops in three stages: (1) transient distention of the alveoli during expiration, (2) permanent distention and (3) formation of alveolar blebs. X-ray examination in the first stage shows a clear shadow of a pulmonary lobe, which remains clearer than the shadow of the rest of the lung in expiration. In the second stage the clear shadow occupies either a lobe or an entire lung. The shadow remains unchanged during expiration and inspiration. X-ray examination in the third stage shows permanent emphysematous blebs, pseudocysts and giant emphysema. Early clinical examination, roentgenoscopy and bronchoscopy are indicated. The disease may be controlled if the causal factor is removed early or it may develop into lobular or pulmonary emphysema or giant emphysema in uncontrollable bronchopulmonary tumors and bronchial cancer.

Book Notices

Surgery of the Spinal Column. By Col. Fred H. Albee, M. R. C., U. S. Army, M.D., Sc.D., Earl J. Powers, A.B., M.D., and Lieut. Col. Harold C. McDowell, M.D., M. C., A. U. S. Fabrikoid. Price, $8. Pp. 460, with 229 illustrations. Philadelphia: F. A. Davis Company, 1945.

This work is intended to be a source book on spinal surgery. The authors were motivated by the frequency of spinal injuries incident to civilian life, and the casualties of war. Following a short but interesting chapter on the history of spinal surgery there is a chapter on surgical armamentarium which explains the use of Albee's motor driven instruments and extols the virtues of the Albee-Comper table. Then follow chapters on spinal anatomy, laminectomy, fractures, dislocations, tuberculosis, static deformities, congenital deformities and anomalies, low back disabilities, osteomyelitis, spondylitis, tumors and miscellaneous disorders of the spine. The subjects are covered in a somewhat cursory manner. The section on gunshot and stab wounds of the spine is allotted about thirty-six lines. Albee's recommendation of early spinal fusion in cases of tuberculosis at any age and his advocacy of spine fusions as a primary treatment for fractures of the thoracic and lumbar vertebrae are presented. Dr. Albee's pet thesis that myofascitis is the most important cause of backache is also discussed at length. Albee's methods of bone grafting as applied to various conditions requiring spine fusion are emphasized throughout the book. On page 262 sciatica and locomotor ataxia are listed in the etiology of kyphosis of infancy and early childhood. In general one would not be inclined to consider this work to be a source book on spinal surgery. The coverage of each subject is neither sufficiently broad nor detailed. The subject matter is easily understood, unfortunately at the expense of detailed discussion which one would expect to find in a work of specialized scope. It is a detailed review of Albee's views and methods in spinal surgery. One would not be inclined to recommend this book to the general practitioner. The student of orthopedic surgery might find it too highly specialized. Much of the material is to be found in Albee's older works: Orthopedic and Reconstruction Surgery and Bone Graft Surgery in Disease, Injury and Deformity, Campbell's Text Book of Orthopedic Surgery, Elsberg's Surgical Diseases of the Spinal Cord and the writings of Hodges, Phemister and Brunschwig, Frazier and others. The book has a large assortment of the poorest illustrations that have been submitted to the medical profession in many years. The best illustrations are borrowed.

Psychology of Sex Relations. By Theodor Reik. Cloth. Price, $3. Pp. 243. New York & Toronto: Farrar & Rinehart, Inc., 1945.

This book has as its central thesis the difference between sex and love. The author is a distinguished psychologist who was one of Freud's early students and who has made many important sociopsychologic contributions. "Ritual" and "The Unknown Murderer" are perhaps two of his books which are best known in the United States. His knowledge of Freud and psychoanalysis cannot be questioned. However, his understanding of the developmental history of psychoanalysis in the past forty years seems to be strangely antiquated. He ignores the development of ego psychology, which has occupied psychoanalysts in the past twenty-five years. He terms his revaluation and revision of Freud's theories "neopsychoanalysis." With many of Reik's formulations psychoanalysts would have no quarrel. He seems in the book to be setting up a straw man in order to demolish him. Reik believes that the capacity to love, which shows itself in affectionate tenderness and consideration, does not arise from the sexual urge. Neither is it a sublimation of sexual desire, which he believes is as incapable of sublimation as are pangs of hunger. He presents some interesting speculations on the genesis of love and tenderness. In his overemphasis on his discovery of love, Reik seems somewhat naive. The book is easy to read, except for repetitiousness in the first hundred pages. The general public has often misinterpreted psychoanalysis much as Reik does. The enlightenment which the author has experienced may be helpful to many readers.

Pulmonary Tuberculosis: A Handbook for Students and Practitioners. By R. Y. Keers, M.D., F.R.F.P.S., Senior Physician and Medical Superintendent, Tor-na-Dee Sanatorium, Murtle, Aberdeenshire, and B. G. Rigden, M.R.C.S., L.R.C.P., First Assistant Medical Officer, Tor-na-Dee Sanatorium. With a foreword by F. H. Young, O.B.E., M.D., F.R.C.P., Physician, Brompton Hospital for Consumption and Diseases of the Chest, London. Cloth. Price, $5. Pp. 273, with 124 illustrations. Baltimore: William Wood & Company, 1945.

The authors have grasped the modern trend in teaching tuberculosis in this work, which they describe in the preface as a handbook. The pages are packed with practical instructions. The subject matter is presented in such an interesting manner as to avoid dry repetition and to stimulate interest in diseases of the chest. Here, according to the preface, "the practitioner may obtain an outline of present day therapeutic measures which will enable him to advise and reassure." Emphasis is placed on the fundamental conceptions that pulmonary tuberculosis is a generalized disease which becomes localized in the lungs and that treatment must be directed at the tuberculosis patient, not just the tuberculous lung. The fifteen chapters with numerous illustrations, mostly reproductions of significant x-ray films, follow the usual routine of presentation of this subject—history, bacteriology, pathology, epidemiology, symptomatology, examination, radiology, differential diagnosis, prognosis, treatment, after-care and tuberculosis as a national problem. This concluding chapter is one which might well be read and reread by all persons interested in public health and welfare. It likewise reflects the up to the minute attitude of the authors toward the tuberculosis problem. In several places there are references to practices and conditions which exist in England and do not enter the problem in America. These are of minor importance and do not detract in the least from the value of the volume. This book, covering the disease briefly yet concisely, might well become an outline for teaching tuberculosis today. From it and with it undergraduate and graduate students and practitioners interested in "refresher" studies may readily obtain a practical working knowledge of the modern management of tuberculosis patients both from the physical and from the psychologic (psychosomatic) aspect.

The Medical Use of Sulphonamides. By Various Authors. (Edited by F. Hawking and F. H. K. Green.) Medical Research Council War Memorandum No. 10. Second edition. Paper. Price, 1s. 3d. Pp. 71. London: His Majesty's Stationery Office, 1945.

As the authors state in the introduction, it was thought desirable to prepare a concise review of the clinical indications for some of the principal sulfonamide drugs in the light of their current or potential availability in Great Britain. Since the appearance of the first edition in 1943 rapid advancements have been made in this field of therapy, and a concise and authoritative revision, such as the present revision reflects, is highly desirable. This compact work reviews the chemistry, pharmacology and general principles of sulfonamide therapy. In addition there is a discussion of the relationship of sulfonamide therapy to penicillin. Treatment of various infectious diseases are detailed, and the limitations of this type of therapy are stressed. Pertinent references to the extensive literature on the subject are interspersed throughout the text. Although American clinicians will not be in complete agreement with some of the statements, particularly with reference to the topical use of the sulfonamides and their prophylactic and therapeutic applications in burns and wounds, this memorandum represents an excellent presentation of the subject. It should be of considerable aid to practitioners who in the busy years of war have not been able to keep up with newer developments.

Willis Rodney Whitney: Pioneer of Industrial Research. By John T. Broderick. With foreword by Dr. Karl T. Compton. Cloth. Price, $3. Pp. 324, with 7 illustrations. Albany, N. Y.: Fort Orange Press, Inc., 1945.

Those who are interested in research will enjoy this biography. Others who are interested in people and their lives will also enjoy the book, as it reveals the life of a man responsible for many advances in the electrical field. It is well written, interesting and provocative; no one with a curious mind can read such a book without wondering about research, past accomplishments, future possibilities and the supply of such men as Willis R. Whitney, who, as director of the Research Laboratory of the

General Electric Company, tore apart veil after veil of secrecy in electricity and came forth with scientific facts for the betterment of mankind. One can now better understand why Floyd Gibbons had so much reason to call this laboratory the House of Magic; the man primarily responsible for the activities in the laboratory had an innate and unsatisfiable curiosity and was never happy unless he was doing something to feed this curiosity. He, as they say, did things, and the reasons are well revealed in his biography and should be a source of encouragement to other would-be scientists who in moments of stress wonder if the struggle is worth while. It is, and the life of Whitney serves as a good example.

Adult Adjustment of Foster Children of Alcoholic and Psychotic Parentage and the Influence of the Foster Home. By Anne Roe, Ph.D., and Barbara Burks, Ph.D., with a chapter on Sibling Adjustment in collaboration with Bela Mittelmann, M.D. Memoirs of the Section on Alcohol Studies, Yale University, No. 3. Paper. Price, $2. Pp. 164. New Haven: Quarterly Journal of Studies on Alcohol, 1945.

This excellent study touches on a matter of primary importance in medical psychology: "The problem of the relative influence of heredity and environment on the course and outcome of human lives." It is, in essence, a sociopsychologic, statistical survey which has a bearing on matters often—and without foundation—regarded as foreign to medical science. The adjustment of the child who has been handicapped not by tangible, immediately observable and frequently organic limitations but of the one who is impeded by the imponderable and abstract features of living is an extremely significant avenue for research. When it is considered that the authors of this study had to channel new avenues toward their goal and to work with specially fashioned and self-admittedly inadequate tools, one is pleased and surprised with the results as regards both the matters at hand and the directions implied. The single criticism applies to the bibliography, which is lacking in background material for work of this kind and constitutes an impediment to the project if it betrays or gives clues to the orientation of the authors. At the same time, however, this kind of study is regarded as pioneering, and it deserves a better hearing than it probably will get.

Materia Medica, Therapeutics and Pharmacy: Description of Drugs, Therapeutics, Practical Pharmacy, Metrology, Pharmaceutical Arithmetic, Prescription Writing in Apothecary and Metric System, Narcotic Drugs, Sulfa Group of Drugs, Penicillin, Special Therapeutics, Older Drugs, Tables for Reference, Urinalysis, Technic of Urinalysis, Poisons and Antidotes, Dosage Rules, etc., as a Text Book for Students in Colleges of Chiropody and as a Reference Book for the Chiropodist. By Howard T. Kearney, Ph.G., R.Ph., D.S.C., Professor of Materia Medica, Therapeutics and Pharmacy, Illinois College of Chiropody and Foot Surgery, Chicago. Cloth. Price, $6. Pp. 494. Chicago: Chiropody Record Publishing Company, 1945.

This volume, which is intended only for students and practitioners in the field of chiropody, is divided into four principal parts devoted to materia medica, therapeutics, pharmacy and prescription writing. Included in these sections are chapters and discussions on the history, classification, preparation, administration, uses and actions of drugs, incompatibilities, equivalent measures and weights, toxicology, narcotics, insulin, blood plasma, vitamins, general and local anesthesia, kidney functions, urinalysis and other laboratory tests. There is also an alphabetical list of drugs and illustrative material on prescription writing. It is readily apparent that much of the material in this book is outside the scope of chiropodial practice and can be of little practical value to students in this field. Other parts may serve as reference, but the book as a whole is not of textbook caliber in its present form.

Fires in Hospitals and Institutions. Paper. Price, 50 cents. Pp. 48, with illustrations. Boston: National Fire Protection Association, 1945.

Although a fire under any circumstances is likely to be costly and disastrous, a fire in a hospital or a home for the aged, the infirm or the orphaned has added hazards and menacing aspects which make it even more catastrophic. In this pamphlet are collected the records of a number of such fires, among the worst the tragedy of the burning of the Crile Clinic in 1929 and of the Evansville State Hospital for the Insane in 1943. There are several pages of records of other fires in hospitals, convalescent homes and homes for the aged which indicate their seriousness. Most of the fires began in service rooms of the buildings, indeed more than half of them in closets, laundries, elevator shafts, boiler rooms, work shops or linen rooms. Most of the losses could have been avoided with proper use of automatic sprinklers and adequate attention to making the building safe against fire. Two pages on planning for fire safety contain invaluable lessons for every superintendent of a hospital or medical institution.

The Great Stewardship: A Story of Life Insurance. By Albert W. Atwood. Cloth. Price, $2.50. Pp. 201. New York & London: Harper & Brothers, 1945.

In the decade that started in 1843 fifteen life insurance companies were founded which are still leaders in their field. Today there are 70,000,000 policyholders in the United States, and the insurance in force amounts to 148 billions of dollars. This book tells the story of the origin and growth of life insurance. A special chapter on health and longevity is of particular interest to the physician. The author is convinced that private management and competition have been largely responsible for the magnificent growth of the life insurance system, but he recognizes also the part played by government regulations and supervision. The final chapter is entitled "Social Insurance Plus Life Insurance." Mr. Atwood feels "there should be no conflict between social security and life insurance, or any other types of security that come from the exercise of personal industry and thrift, unless the benefits offered by social security are so large and attractive in themselves that many people will not make additional provision." He says that "the 'will to work' will be weakened and destroyed if social security benefits become confused with what men can do for themselves."

Conditioning Exercises for Girls and Women. By Anne Schley Duggan, Director the Department of Health, Physical Education and Recreation at the Texas State College for Women, Denton, Texas, Mary Ella Montague and Abbie Rutledge. Cloth. Price, $2.50. Pp. 116, with illustrations and music. New York: A. S. Barnes and Company, 1945.

This book serves as a convenient guide to the woman teacher of physical education who wishes to use systematic exercise as a method for improving the physical condition of girls and women. The objectives of conditioning exercises and their place in the total program of physical education for women are discussed. The suggested exercises are carefully analyzed in terms of kinesiology, physiology and effects specific to each part of the body. The clear and precise directions for teaching each exercise will be of help to the beginning or inexperienced teacher. The chief value of the book, however, lies in the fact that it has been written for women with direct reference to their needs and abilities. The methods described depart from the rigid technics of the older systems of formal exercise, which were designed primarily for men and boys, and by an adaptation of many technics of the modern dance a series of exercises are devised which, though strenuous, are primarily feminine in character. Excellent illustrations accompany the text, and scores for the musical accompaniment are provided in an appendix.

Vitamins and Hormones: Advances in Research and Applications. Edited by Robert S. Harris, Associate Professor of Nutritional Biochemistry, Massachusetts Institute of Technology, Cambridge, Mass., and Kenneth V. Thimann, Associate Professor of Plant Physiology, Harvard University, Cambridge, Mass. Volume III. Cloth. Price, $6.50. Pp. 420, with illustrations. New York: Academic Press, Inc., 1945.

The third volume of this series on vitamins and hormones includes contributions from fourteen individuals in England, the United States and Palestine. These research workers report on the interrelation of vitamins, the synthesis of B vitamins by intestinal bacteria, sulfonamides and vitamin deficiencies, manifestations of antepartum nutritional deficiency, growth factors in microbiology, synthetic estrogens, chemistry of anti-pernicious anemia substances of liver, action and metabolism of gonadotropic hormones and the role of acetylcholine in the mechanism of nerve activity. Those who want a monograph on advances in research and applications of vitamins and hormones will find this volume a useful reference source. Of course the advanced worker will obtain greatest value, but any one interested in hormones and vitamins would read this book with profit. It is the type of monograph for which there is much need and of which there should be more in other fields.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HEIGHT AND WEIGHT AS AFFECTED BY GENERATION AND AGE OF MOTHER

To the Editor:—**Are children born of women in older ages as strong or as tall as children born in youth? Is the stature of our people growing taller or shorter, or does it stay about the same?**

C. Raimer Smith, M.D., Decatur, Ill.

ANSWER.—The first part of the question is difficult to answer, for not much information is available. Waaler, basing his studies on Norwegian children, states that there is no biogenetic reason for child growth to suffer when correlated with the parity of the child and the age of the mother. If there is any growth deterioration it is socioeconomic, owing to the fact that in the lower income groups later children often add to the financial burden to the point where their health and dietetic care suffer.

We are growing taller and heavier. It has been said that in the last four generations the gain has been 1 inch (2.5 cm.) and 5 to 7 pounds (2.3 to 3.2 Kg.) per generation. Here are some figures for the United States:

	Height	Weight
Harvard fathers	173.95 cm.	140.24 pounds
Harvard sons	177.50 cm.	150.30 pounds
American college youths, 1916-1917	67.15 inches	132.05 pounds
American college youths, 1935-1936	69.23 inches	141.79 pounds
American college girls, 1916-1917	62.93 inches	119.00 pounds
American college girls, 1935-1936	63.72 inches	120.88 pounds

These figures show consistent gains in height and weight, save in female weight. Here the lack of gain probably is due to "dieting."

MULTIPLE SCLEROSIS

To the Editor:—**What is there new in the treatment of multiple sclerosis?**

Morris B. Schwartzfarb, M.D., Bronx, New York.

ANSWER.—Based on Putnam's venous occlusion theory, at least in regard to the assumption that a faulty blood clotting mechanism precipitates venous occlusion in multiple sclerosis, the prothrombin and coagulation times have been estimated in 28 untreated cases (Reese, H. H.: Multiple Sclerosis and Dicumarol Therapy, *Tr. Am. Neurol. A.* **70**:78, 1944). The coagulation time was normal, but an apparent hypoprothrombinemia was found in most of the cases. The use of the anticoagulant dicumarol for three to five days weekly in dosages of 1.5 to 3 mg. per kilogram was without any observable benefits. The results seemed to contradict Putnam's venous occlusion theory. A similar result has also been reported (Moore, M. T.: *Tr. Am. Neurol. A.* **70**:81, 1944).

The use of another anticoagulant, heparin, which prolongs coagulation time by neutralizing the circulating prothrombin and also inhibits platelet agglutination, requires frequent or continuous intravenous administration and is therefore expensive. No claim of cure can be made for it. The use of desensitizing allergens is also under clinical investigation. The effect of a warm climate is said to be favorable (Freeman, Walter: *M. Ann. District of Columbia* **13**:1 [Jan.] 1944; **13**:58 [Feb.] 1944). Fever therapy, either by typhoid vaccine intravenously or by malaria, has not yielded good results and the use of liver extracts and large doses of thiamine have not prevented relapses. There may be some indication, however, that vitamin therapy may reduce the severity of a relapse, but at the present time no conclusive statement is justified. Quinine has also been used extensively in the treatment of multiple sclerosis, but its value remains unproved. "Deleading" patients and the removal of other "toxic" metals has proved futile.

Freeman and most other neurologists agree that prolonged rest is the best form of treatment for the acute stage of multiple sclerosis, and a warm climate and freedom from upper respiratory infections may be the best insurance against a recrudescence. As no specific remedy is known, the patient must depend on his own immunity mechanisms to hold the disease in check. The building up of this resistance by rest and freedom from other illness is the only fully recognized form of treatment of multiple sclerosis at the present time.

Another drug used in the treatment of multiple sclerosis is histamine, a powerful dilator of capillaries. Histamine diphosphate in a 1:250,000 dilution is given by the drip method. The reports are somewhat encouraging, and in some instances prompt improvement has been noted (Horton, B. T.; Wagener, H. P.; Aita, J. A., and Woltman, H. W.: Treatment of Multiple Sclerosis by the Intravenous Administration of Histamine, THE JOURNAL, March 18, 1944, p. 800). The procedure appears safe, as pulse and blood pressure are not affected by repeated injections (Benson, A. J., and Horton, B. T.: *Proc. Staff Meet., Mayo Clin.* **20**:113 [April 18] 1945).

No form of treatment can be expected to grow axons back again after they have been destroyed. The lesions of multiple sclerosis go through an acute stage and then become chronic. Practically all the damage is done during the acute stage. The aim of treatment should be to preserve the patient from subsequent relapses. Almost all patients show spontaneous improvement and, if given at the appropriate time, any form of treatment may encourage a patient temporarily. Investigators in general are extremely skeptical of reported improvement from any form of treatment. The aim of treatment should be to prevent relapses, not in an expectation that myelin will be regenerated or a glial scar dissolved (Putnam, T. J.: *Tr. Am. Neurol. A.* **70**:82, 1944).

DRUGS AND PSYCHOLOGY AS COERCIVE DEVICES

To the Editor:—**Is there any definite proof of the use of drugs or of psychologic methods to make jailed persons sign statements detrimental to them?**

M.D., Colorado.

[This question has been referred to two qualified consultants, whose respective replies follow.—EDITOR.]

ANSWER.—There is no definite evidence that drugs have been used to force individuals to self-destructive acts or statements. The experience with so-called truth serums (which include scopolamine and intravenous barbiturates such as amytal and pentothal) is that the subject tells of true experiences or of fantasies which he has had. Even under hypnosis it is impossible to make a person perform acts which are not condoned by his own conscience. However, it is quite likely that drugs, with or without hypnosis, would be effective in causing a man to sign his name to a statement.

Proof is lacking that the use of any drug or any other method is used to make persons in police custody sign incriminating statements. In this country certain drugs such as scopolamine and sodium amytal have been used for interrogation purposes, but the effects of these drugs are such that it is not believed a signature could be obtained from the subject which would in any way resemble his ordinary style of writing. The possibility raised by the question must be discounted if for no other reason than the practical one that suspected persons could be coerced without the use of any drug into signing statements in their normal handwriting. In other words, any agency desirous of obtaining a signed statement from an unwilling subject would not find it worth the trouble and effort to use drugs for that purpose. However, certain drugs have been used by investigators for interrogation purposes. Abuse of such methods, that is, the use of the drug on an innocent person for the purpose of obtaining an incriminating statement, is rare if existent at all.

CHLOASMA

To the Editor:—**A patient has chloasma. I should like to know whether anything new has been discovered to overcome or control the pigmentation of the skin.**

F. G. Krum, M.D., Hamburg, Pa.

ANSWER.—The pigmentation occurring in chloasma is somehow related to the ovary, or perhaps it should be stated that it is not uncommon during pregnancy. In addition, some relationship to vitamin C was described by Cornbleet a few years ago. Not all cases have responded to large doses of vitamin C, but it is worth trying out. Ovarian preparations, either natural or synthetic, have not been particularly satisfactory. Neither is external therapy satisfactory.

VITAMIN K FOR ALLERGY

To the Editor:—**Have you any information regarding the use of vitamin K in urticaria?**

M.D., New York.

ANSWER.—Recently J. H. Black has reported (*J. Allergy* **16**:83 [March] 1945) gratifying results with the use of 6 mg. of vitamin K daily in the treatment of chronic urticaria and angioneurotic edema. Of these who failed to obtain relief by the usual methods, 62 per cent were relieved by vitamin K therapy. The duration of treatment varied from one to four weeks. Other workers have failed to obtain results comparable to those of Dr. Black.

REACTIONS FOR SYPHILIS FOLLOWING MALARIA AND DENGUE

To the Editor:—Many veterans are being examined who have positive serologic tests for syphilis but no history or physical evidence of the disease. A large percentage of these men have had recurring malarial paroxysms. Occasionally recent infections such as dengue fever or chancroid or a recent vaccination against typhoid are reported. What are the most reliable procedures for diagnosis in such cases? What relation does reagin titer bear to true and false positivity? What percentage of patients with asymptomatic chronic malaria have false positive serologic reactions for syphilis? In patients with chronic malaria not having paroxysms, how often are the malarial parasites demonstrable by the thick smear method? Is it advisable to employ routinely the heterophile agglutination test for infectious mononucleosis in these cases? Is there any record of patients with dengue fever yielding false positive reactions for syphilis? Does typhoid vaccination ever yield similar reactions? If so, for how long and what percentage?

Arthur A. Rodriquez, M.D., South Charleston, W. Va.

Answer.—The problem raised is one of major importance. At separation centers somewhere between 1.5 and 3 per cent of separatees are discovered to have positive blood serologic reactions for syphilis previously unrecorded. As suggested in the inquiry, a considerable number of those with positive serologic reactions have had malaria, recent vaccinia or other conditions which are known causes of biologic false positive serologic tests. It is highly desirable that the diagnosis of syphilis be not made in such instances on the basis of a single unsupported positive blood reaction but that the patient be carefully studied to rule out the possibility of false positivity. The differentiation of true from false positive serologic reactions is often a matter of extreme difficulty involving a complicated investigation of the patient and sometimes of his familial and sexual contacts. A suggested method of procedure is outlined in a paper by Moore, Eagle and Mohr, in the article Biologic False Positive Serologic Tests for Syphilis: III. A Suggested Method of Approach to Their Clinical Study (The Journal, Nov. 9, 1940, p. 1602). Of the several procedures suggested in this paper, one, the Kahn "verification" test, has now been demonstrated to be worthless, as are all other so far described "verification" tests.

To reply so far as possible to the other specific questions: By and large the reagin titer on the basis of quantitatively performed serologic tests is low in patients with false positive tests and high, or at least relatively higher, in patients with syphilis. There are, however, many exceptions to this statement, since an occasional patient with a biologic false positive reaction is found to have a high titer and many patients with long-standing syphilitic infection, whether or not previously treated, are found to have low titered tests. The major point of importance in differentiation between false and true positive tests is not the titer on a single occasion but instead the quantitative results on serially tested specimens, taken at intervals of several weeks and over a period of from three to six months. In the majority of patients with biologic false positive reactions the titer tends to fall or the test to become completely negative, whereas in syphilis the titer tends to remain fixed or, in the case of recent infections, to rise. There is no information as to the percentage of persons with chronic asymptomatic malaria who give false positive serologic tests for syphilis. Available information indicates that in most patients with acute episodes of malaria the blood serologic test may become positive during the febrile period only, the positive test disappearing within a few days or weeks thereafter. In chronic asymptomatic malaria the percentage success of demonstration of malaria parasites by the thick smear method depends entirely on the expertness of the examiner and may range from 0 to 50 per cent.

Since infectious mononucleosis is a frequent cause of biologic false positivity in serologic tests, and, since the disease in mild form is certainly widely prevalent, it is desirable to employ a heterophile agglutination test routinely for all patients suspected of biologic false positivity.

The question of false positive serologic reactions for syphilis in dengue fever has been referred to Lieut. Col. Charles R. Rein, M. C., Army Medical Center. He says "We have received about a dozen specimens from presumably nonsyphilitic individuals with a history of a recent episode of dengue. These specimens gave positive serologic reactions for syphilis. We were unable to follow the patients for a sufficient period of time, but some of them did revert to seronegativity in a short period. It was impossible to exclude malaria, infectious mononucleosis and other nonsyphilitic febrile diseases in these patients, so that I am not certain whether the positive serologic reactions were due to dengue or to something else."

It is believed that typhoid vaccine does not cause false positive serologic tests.

The most recent extensive review of the subject is Biologic False Positive Reactions to the Tests for Syphilis by Herman Beerman (*Am. J. M. Sc.* **209**:525 [April], **210**:524 [Oct.] 1945).

CODEINE IN HEAD INJURIES

To the Editor:—What are the contraindications to the use of codeine for the relief of pain in head injuries? Forrest C. Leiter, M.D., Chicago.

Answer.—The dangers from the use of codeine for the relief of pain with head injuries are relatively slight. Codeine, like morphine, is a central respiratory depressant, although to a considerably lesser degree. For that reason it should be used only for the relief of pain and not to reduce restlessness, which in fact it may aggravate. It should not be given to stuporous or semistuporous patients. It should not be administered in unusually large amounts or with unusual frequency. However, the combination of codeine to relieve pain and paraldehyde for extreme restlessness proves both safe and useful in many cases. Care must be taken not to confuse the increasing stupor produced by intracranial pathologic conditions with the sleep induced by such medication.

HEMANGIOMA OF SPINE

To the Editor:—I have a patient who has for four months suffered with what we used to call sciatica. Pain starts in the left hip and follows the nerve down the thigh to the calf of the leg. The condition was diagnosed by a competent man as hemangioma of the fourth lumbar vertebra. He recommended high voltage x-ray therapy, of which eight treatments have been given. The patient is improving gradually and has pain only from too much walking or standing. Pain stops immediately from sitting. What is the prognosis as to cure and liability to recurrence? May it become malignant? C. J. Lidikay, M.D., Kansas City, Kansas.

Answer.—If we take the diagnosis of hemangioma of the fourth lumbar vertebra to be correct, the chances are good that this patient will definitely receive relief from high voltage x-ray therapy. If his trouble continues and paraplegia should develop, a laminectomy would be necessary to decompress, as it were, the spinal canal, thus giving more room for the cord and the blood vessels. These hemangiomas are not truly malignant and it is rare indeed that they develop into a true malignant tumor.

ULTRAVIOLET LIGHT FOR AIR DISINFECTION

To the Editor:—I am taking care of a family of five in which there is almost uninterrupted infection of the upper respiratory tract, making the rounds with the start of the cold weather. Is an apparatus for treating the air with ultraviolet light of any real value in helping to cut down cross infections? If not, is there anything else on the market in the form of real value in helping to cut down cross infections? And, if not, is there anything else on the market in the form of a spray or some mechanical appliance that would be of any benefit in a case like this? M.D., Massachusetts.

Answer.—Assurance cannot be given that any ultraviolet device or any spraying device, employing for example aerosols, will fully prevent recurrences of infections such as mentioned in the query. It is true that there are bacteria in the air and that ultraviolet rays of proper length and aerosol sprays, and perhaps other sprays properly used, may reduce the bacterial content of occupied spaces.

ELECTROCAUTERIZATION OF CERVIX AND CANCER

To the Editor:—Since deep burns are conducive to skin cancer, does it not follow that cervical electrocauterization, commonly practiced in the doctor's office, may be contributory to squamous cell cancer of the cervix? S. L. Governale, M.D., Chicago.

Answer.—So far as is known, there is no evidence in the literature to indicate that electrocauterization of the cervix is a contributing factor in the causation of cancer of the cervix. On the contrary, it is generally believed that this measure is an effective prophylactic against cervical cancer.

WATERY CYSTS OF THE CONJUNCTIVA

To the Editor:—My previous letter on watery cysts of the conjunctiva appeared in The Journal Aug. 25, 1945, page 1260, and a comment in the October 13 issue, page 532. I have recently found a description of what I had in mind in Weeks, J. E.: Diseases of the Eye (Philadelphia, Lea & Febiger, 1910, p. 258): "This consists in dilatation of some of the lymph channels, usually of the ocular conjunctiva. It appears in small, slightly elevated, transparent vesicles, usually associated in chains, very superficially situated in the outer or inner half of the bulbar conjunctiva. The vesicles are irregular in shape and vary much in size, seldom exceeding a diameter of 3 millimeters. The vesicles may be readily moved over the underlying tissue. They sometimes produce irritation and are accompanied by congestion of the conjunctiva in which they lie but are not, as a rule, a source of pain. The vesicles are due to interference with the lymph stream by obstruction. Elderly individuals are more frequently affected than young individuals. Treatment: The vesicles may be excised, or they may be very satisfactorily destroyed by means of the fine galvanocautery point." F. P. Thompson, M.D., Chicago.